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31 May 2019
File No. 130072-022

United States Environmental Protection Agency, Region IX
75 Hawthorne Street (SFD-7-3)
San Francisco, California 94105

Attention: Ms. Karen Jurist, Project Manager
California Site Cleanup Section 3

Subject: March 2019 Progress Report
Cooper Drum Company Superfund Site
South Gate, California

Dear Ms. Jurist:

On behalf of the Cooper Drum Cooperating Parties Group (CDCPG), Haley & Aldrich, Inc. prepared this progress report to summarize project work performed at the Cooper Drum Company Superfund Site (Site) during the March 2019 reporting period. This progress report also provides an update on planned work for the two months following the reporting period. This report is being submitted pursuant to Section M of Appendix C of the Consent Decree entered by the United States District Court Central District of California, Western Division, Case 2:15-cv-09931 on 20 April 2016.

Project Work Performed in March 2019

PROJECT MANAGEMENT, COMMUNICATION, AND REPORTS

- In-person meeting with EPA occurred on 27 March 2019 in San Francisco, California;
- January 2019 Progress Report was submitted to the Environmental Protection Agency (EPA) on 29 March 2019; and
- Project communication and management tasks regarding scheduling, staffing, operation, maintenance, and monitoring (OMM) were completed.

CONSTRUCTION-RELATED TASKS

No construction-related tasks were completed during this period.

OPERATION AND MAINTENANCE

Activities

OMM inspections were performed on a biweekly basis in March 2019. During this reporting period, the following activities were completed:

- The Operable Unit 1 (OU1) groundwater extraction system recovered approximately 313,480 gallons of groundwater during this reporting period. The groundwater system had an average flow rate of approximately 9.1 gallons per minute (gpm) and a 77 percent uptime during the reporting period. The groundwater extraction system was shutdown between 6 March and 13 March 2019 due to flooded well vaults from heavy rain.
- Soil vapor condensate was not generated during the reporting period.
- The soil vapor extraction (SVE) system was in cyclical mode during the reporting period. The SVE system was active for approximately 144 hours from 1 to 6 March 2019 with a 100 percent uptime. Operation focused on DPE wells DPE-1 to DPE-14 and SVE well SVE-10. The SVE system was inactive from 6 to 31 March 2019.
- Total influent vapor flow rate was measured at 550 standard cubic feet per minute, with influent vacuum measured at from 94 inches of water.

Total volatile organic compound (VOC) concentrations for the extraction wells were measured on-Site using a handheld photoionization detector (PID). Table I summarizes the treatment system, manifold, and individual DPE well vapor readings collected during SVE operation.

Sample Collection and Analysis

- Vapor samples were collected from the vapor treatment system influent, mid-point, and effluent on 6 March 2019 and submitted to American Analytics for quantification of VOCs using EPA Method TO-15 and Total Non-Methane Organic Compounds (TNMOC; measured as hexane using EPA Method TO-3). The concentrations of detected VOCs in the effluent samples were below the exhaust limits in the South Coast Air Quality Management District's (SCAQMD) Various Locations Permit. The analytical results are summarized in Table II; the laboratory report is included as Attachment A.
- Water samples were collected from the groundwater extraction treatment system on 20 March 2019. Samples were submitted to American Analytics and analyzed for VOCs using EPA Method 8260B and 1,4-dioxane using EPA Method 8270M-isotope dilution. The analytical results for these samples are summarized in Table III; the laboratory report is included in Attachment B.
- Quarterly water samples were collected from the groundwater extraction treatment system on 20 March 2019. The system samples were collected to comply with Los Angeles County Sanitation District (LACSD) Industrial Wastewater Discharge Permit (IWDP). The samples were submitted to American Analytics and analyzed for the following:
 - VOCs using EPA Method 624;
 - Semi-volatile organic compounds using EPA Method 625;
 - Chemical oxygen demand by EPA Method 410.4;

- pH by Method SM4500H+;
- Total suspended solids by Method SM2540D; and
- Dissolved sulfides by Method SM4500-S.

The concentrations measured in the effluent water sample were below the compliance limits specified in the LACSD IWDP. The analytical results for this sample are summarized in Table IV; laboratory reports are included in Attachment C.

Remediation Progress

A summary of the mass removal by the SVE/DPE and groundwater treatment systems and the volume of groundwater treated during this reporting period are provided below:

- Approximately 0.12 pounds of chemicals of concern (COC) were removed by the groundwater extraction system during the reporting period;
- Approximately 23 pounds of COC have been removed by the groundwater extraction system since July 2012;
- No perched (OU2) groundwater was extracted during the reporting period. According to perched groundwater gauging results, the perched zone has been dry since 2015;
- Cumulative volumes of extracted perched (OU2) and OU1 groundwater were approximately 1,117,865 gallons and 35,498,201 gallons, respectively (Figure 1);
- Approximately 0.23 pounds of COC were removed by the SVE system during the reporting period; and
- The cumulative COC and VOC mass removal by the SVE system were approximately 582 and 800 pounds, respectively. This information is shown graphically in Figure 2.

OTHER FIELD-RELATED TASKS

- Quarterly OU1 groundwater samples were collected from new monitoring wells MW-63, MW-64A, and MW-64B on 13 March 2019. Samples were submitted to American Analytics and analyzed for VOCs using EPA Method 8260B and 1,4-dioxane using EPA Method 8270M-isotope dilution.

Project Work Performed or Planned in April and May

Project tasks performed or planned for April and May 2019 are listed below:

- Continue cyclical operation of SVE and DPE wells;
- Collect vapor samples from the soil vapor treatment system on a monthly basis during operation per substantive requirements specified in the South Coast Air Quality Management District (SCAQMD) various locations permit;
- Continue OU1 groundwater extraction from wells EW-2, EW-4, EW-5, EW-7A/B, and EW-A;

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31 May 2019

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- Collect water samples from the groundwater treatment system on a monthly basis for performance evaluation; and
- Submit monthly progress reports.

Please call Mr. Peter Bennett at (510) 879-4547 or Mr. John Lang at (513) 325-2732 if you have any questions regarding this progress report.

Sincerely yours,
HALEY & ALDRICH, INC.



Christopher J. Tsatsios, PE
Associate Engineer



Peter Bennett, CHG
Principal Hydrogeologist

Attachments:

- Table I – Field Monitoring Results for Soil Vapor
- Table II – Vapor Treatment System Analytical Results
- Table III – Groundwater Treatment System Analytical Results
- Table IV – Industrial Wastewater Discharge Permit Compliance Analytical Results
- Figure 1 – Cumulative Volume of Groundwater Extracted from OU1 and OU2
- Figure 2 – Cumulative COC and VOC Mass Removal by SVE System
- Attachment A – Soil Vapor Treatment System Laboratory Analytical Report
- Attachment B – Groundwater Treatment System Laboratory Analytical Report
- Attachment C – Industrial Wastewater Discharge Analytical Report

c: California Department of Toxic Substances Control; Attn: Ms. Lori Parnass
Cooper Drum Cooperating Parties Group; Attn: Mr. Kyle Christie
Cooper Drum Cooperating Parties Group; Attn: Mr. John Lang
Cooper Drum Cooperating Parties Group; Attn: Ms. Beth Hesse
Gilbane, Inc.; Attn: Mr. Don Gruber
Los Angeles Unified School District; Attn: Mr. Anthony Espinoza
Los Angeles Unified School District; Attn: Mr. Steven Morrill
United States Environmental Protection Agency Region 9; Attn: Ms. Tessa Berman
City of South Gate Public Works Department, Attn: Mr. Chris Castillo
City of South Gate Public Works Department, Attn: Mr. Clint Herrera
City of South Gate Public Works Department, Attn: Mr. Victor Chavez
City of South Gate Community Development Department, Attn: Mr. Joe Perez

TABLES

TABLE I

FIELD MONITORING RESULTS FOR SOIL VAPOR
 COOPER DRUM COMPANY SUPERFUND SITE
 SOUTH GATE, CALIFORNIA

Page 1 of 1

Date	CONCENTRATIONS AT SVE WELLS - Manifold (ppmv)										CONCENTRATIONS AT SVE SYSTEM (ppmv)			
	SVE-3	SVE-4	SVE-5	SVE-6	SVE-7	SVE-8	SVE-9	SVE-10	SVE-11	SVE-12	HWA	DPA	INF	EFF
3/6/2019	--	--	--	--	--	--	--	0.0	--	--	0.0	5.5	0.0	0.0
Date	CONCENTRATIONS AT DPE WELLS - Manifold (ppmv)													
	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12	DPE-13	DPE-14
3/6/2019	0.0	0.0	0.0	0.0	2.3	0.0	11.8	0.0	0.0	0.0	0.0	0.0	2.1	0.0

Notes:

Sample results collected using photoionization detector (PID)

INF = Influent

DPA = Influent from Drum Processing Area

ppmv = parts per million by volume

DPE = Dual Phase Extraction

SVE = Soil Vapor Extraction

EFF = Effluent

VOC = Volatile Organic Compound

HWA = Influent from Hard Wash Area

-- = not measured

TABLE II

VAPOR TREATMENT SYSTEM ANALYTICAL RESULTS
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA

Page 1 of 1

Analyte	Vapor Concentrations ($\mu\text{g}/\text{m}^3$)			SCAQMD Various Locations Permit
	Influent	Midpoint	Effluent	Exhaust Limit $\mu\text{g}/\text{m}^3$
Benzene	ND<9.6	ND<9.6	ND<9.6	63.9
1,1-Dichloroethane	17	20	12	405
1,2-Dichloroethane	ND<10	ND<10	ND<10	40.5
1,1-Dichloroethene	ND<7.9	7.9	ND<7.9	NA
trans-1,2-Dichloroethene	ND<7.9	ND<7.9	ND<7.9	NA
cis-1,2-Dichloroethene	63	66	38	NA
Ethylbenzene	ND<10	ND<10	ND<10	868
Methyl-t-Butyl Ether (MTBE)	ND<10	ND<10	ND<10	721
Methylene Chloride	ND<49	ND<49	ND<49	730
Tetrachloroethene (PCE)	410	160	ND<14	204
1,1,2,2-Tetrachloroethane	ND<50	ND<50	ND<50	68.7
Trichloroethene (TCE)	160	150	ND<11	1075
Vinyl Chloride	ND<10	ND<10	ND<10	25.6
1,2-Dichloropropane	ND<10	ND<10	ND<10	NA
1,2,3-Trichloropropane	ND<12	ND<12	ND<12	NA
1,4-Dioxane	ND<10	ND<10	ND<10	NA
TNMOC as Hexane*	ND<1.2	ND<1.2	ND<1.2	NA

Notes:

Samples were submitted to American Analytics and analyzed for volatile organic compounds using EPA Method TO-15 and Total Non-Methane Organic Compounds measured as hexane using EPA Method TO-3

*TNMOC results are shown in parts per million by volume (ppmv)

ND Not detected at a concentration equal to or greater than indicated reporting limit

$\mu\text{g}/\text{m}^3$ micrograms per cubic meter

TNMOC Total Non-Methane Organic Compounds

SCAQMD South Coast Air Quality Management District

NA Chemical Exhaust Limit Not Listed in SCAQMD Various Locations Permit

TABLE III
GROUNDWATER TREATMENT SYSTEM ANALYTICAL RESULTS
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA

Page 1 of 1

Analyte	Groundwater Concentrations ($\mu\text{g/L}$)		
	OU1 Groundwater Extraction Wells Influent	OU2 Dual Phase Extraction Wells Influent	OU1 & OU2 Combined Flow Effluent
	3/20/2019	NM	3/20/2019
LACSD TOTAL VOC EFFLUENT DISCHARGE LIMIT	-	-	1,000
CALCULATED TOTAL VOC EFFLUENT DISCHARGE	-	-	33
Benzene	ND<0.20	NM	ND<0.20
Bromodichloromethane	ND<0.20	NM	ND<0.20
Bromoform	ND<0.50	NM	ND<0.50
Bromomethane	ND<0.50	NM	ND<0.50
Carbon Tetrachloride	ND<0.30	NM	ND<0.30
Chlorobenzene	ND<0.30	NM	ND<0.30
Chloroethane	ND<0.50	NM	ND<0.50
Chloroform	ND<0.30	NM	ND<0.30
Chloromethane	ND<0.40	NM	ND<0.40
Dibromochloromethane	ND<0.30	NM	ND<0.30
1,2-Dichlorobenzene	ND<0.30	NM	ND<0.30
1,3-Dichlorobenzene	ND<0.10	NM	ND<0.10
1,4-Dichlorobenzene	ND<0.30	NM	ND<0.30
1,1-Dichloroethane	1.1	NM	0.8
1,2-Dichloroethane	1.6	NM	1.5
1,1-Dichloroethene	ND<0.30	NM	ND<0.30
cis-1,2-Dichloroethene	25	NM	21
trans-1,2-Dichloroethene	4.9	NM	3.8
1,2-Dichloropropane	ND<0.50	NM	ND<0.50
cis-1,3-Dichloropropene	ND<0.20	NM	ND<0.20
trans-1,3-Dichloropropene	ND<0.20	NM	ND<0.20
Ethylbenzene	ND<0.20	NM	ND<0.20
Methylene Chloride	ND<5.0	NM	ND<5.0
1,1,2,2-Tetrachloroethane	ND<0.30	NM	ND<0.30
Tetrachloroethene (PCE)	ND<0.50	NM	ND<0.50
Toluene	ND<0.30	NM	ND<0.30
1,1,1-Trichloroethane	ND<0.30	NM	ND<0.30
Trichloroethene (TCE)	0.80	NM	0.53
1,2,3-Trichloropropane	ND<0.30	NM	ND<0.30
Vinyl Chloride	1.3	NM	ND<0.50
1,4-Dioxane	4.8	NM	4.9

Notes:

Samples were submitted to American Analytics and analyzed for VOCs using EPA Method 8260B

and 1,4-dioxane using EPA Method 8270M-isotope dilution

LACSD = Los Angeles County Sanitation District

VOC = Volatile Organic Compound

ND = Not detected at a concentration equal to or greater than indicated reporting limit

OU1 = Operable Unit 1

OU2 = Operable Unit 2

J = The detected concentration is below the reporting limit and is estimated.

$\mu\text{g/L}$ = micrograms per liter

NM = Not Measured due to OU-2 being dewatered

TABLE IV

INDUSTRIAL WASTEWATER DISCHARGE PERMIT COMPLIANCE ANALYTICAL RESULTS
 COOPER DRUM COMPANY SUPERFUND SITE
 SOUTH GATE, CALIFORNIA

Page 1 of 1

Analyte	IWDP Effluent Concentrations	Permit Limit
	3/20/2019	
Volatile TTO, Total (µg/L)	6.8	1,000
Semi-Volatile TTO, Total (µg/L)	ND	1,000
Suspended Solids (mg/L)	10	-
Soluble Sulfide (mg/L)	ND<0.025	0.1
Chemical Oxygen Demand (mg/L)	ND<7.0	-
pH	7.3	Federal Daily Minimum: 5.0 S.U. Local Daily Minimum: 6.0 S.U.

Notes:

TTO = Total Toxic Organics

ND = Not detected at a concentration equal to or greater than indicated reporting limit

mg/L = milligrams per liter

J = The detected concentration is below the reporting limit and is estimated.

FIGURES

FIGURE 1

CUMULATIVE VOLUME OF GROUNDWATER EXTRACTED FROM OU1 AND OU2
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA

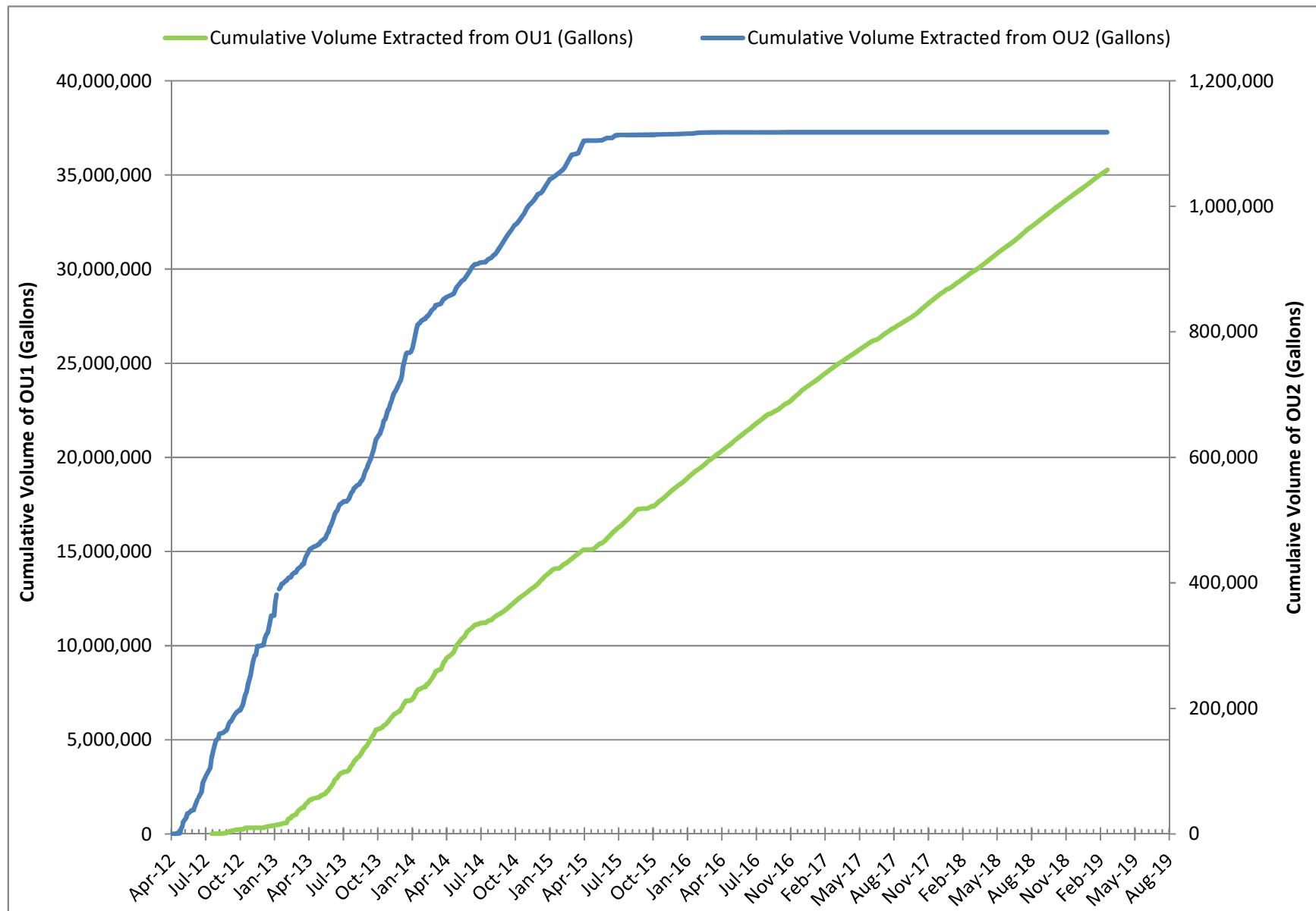
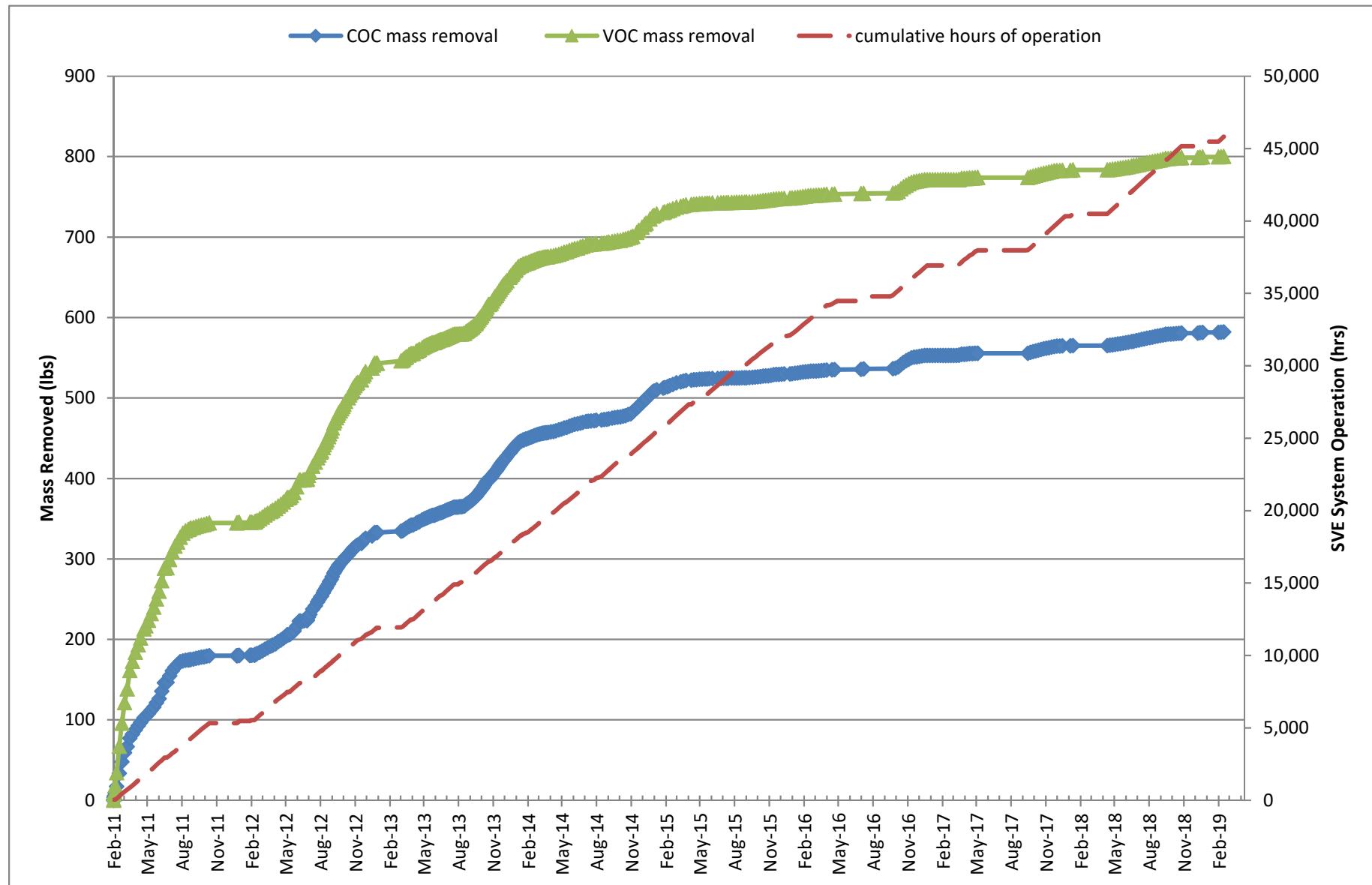


FIGURE 2

CUMULATIVE COC AND VOC MASS REMOVAL BY SVE SYSTEM
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA



ATTACHMENT A

Soil Vapor Treatment System Laboratory Analytical Report



9765 Eton Avenue
Chatsworth
California 91311
Tel: (818) 998-5547
Fax: (818) 998-7258

March 15, 2019

Peter Bennett
Haley & Aldrich (Oakland)
1956 Webster St., Suite 450
Oakland, CA 94612

Re : Cooper Drum - South Gate / 130072-024
A874345 / 9C06025

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 03/06/19 14:20 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report or require additional information please call me at American Analytics.

Sincerely,

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
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TO-15 (Mid Level) ppbv

SVE-VGACE-030619-0001	9C06025-01	Vapor	5	03/06/19 10:45	03/06/19 14:20
SVE-VGACM-030619-0001	9C06025-02	Vapor	5	03/06/19 11:00	03/06/19 14:20
SVE-VGACI-030619-0001	9C06025-03	Vapor	5	03/06/19 11:10	03/06/19 14:20
TO-3 VOCs as Hexane					
SVE-VGACE-030619-0001	9C06025-01	Vapor	5	03/06/19 10:45	03/06/19 14:20
SVE-VGACM-030619-0001	9C06025-02	Vapor	5	03/06/19 11:00	03/06/19 14:20
SVE-VGACI-030619-0001	9C06025-03	Vapor	5	03/06/19 11:10	03/06/19 14:20

A handwritten signature in black ink, appearing to read 'Viorel Vasile'.

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACE-030619-0001

9C06025-01 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
Acetone	<0.050	ug/L	0.050	<21
Benzene	<0.0096	ug/L	0.0096	<3.0
Benzyl chloride	<0.050	ug/L	0.050	<9.7
Bromodichloromethane	<0.050	ug/L	0.050	<7.5
Bromoform	<0.050	ug/L	0.050	<4.8
Bromomethane	<0.010	ug/L	0.010	<2.6
2-Butanone (MEK)	<0.050	ug/L	0.050	<17
Carbon Disulfide	<0.050	ug/L	0.050	<16
Carbon Tetrachloride	<0.013	ug/L	0.013	<2.1
Chlorobenzene	<0.010	ug/L	0.010	<2.2
Chloroethane	<0.010	ug/L	0.010	<3.8
Chloroform	<0.0098	ug/L	0.0098	<2.0
Chloromethane	<0.0099	ug/L	0.0099	<4.8
Dibromochloromethane	<0.020	ug/L	0.020	<2.3
1,2-Dibromoethane (EDB)	<0.020	ug/L	0.020	<2.6
1,2-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
1,3-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
1,4-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
Dichlorodifluoromethane (R12)	<0.049	ug/L	0.049	<10
1,1-Dichloroethane	0.012	ug/L	0.0081	3.0
1,2-Dichloroethane (EDC)	<0.010	ug/L	0.010	<2.5

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACE-030619-0001

9C06025-01 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
cis-1,2-Dichloroethylene	0.038	ug/L	9.6	ppbv
1,1-Dichloroethylene	<0.0079	ug/L	0.0079	<2.0
trans-1,2-Dichloroethylene	<0.0079	ug/L	0.0079	<2.0
1,2-Dichloropropane	<0.010	ug/L	0.010	<2.2
trans-1,3-Dichloropropylene	<0.01	ug/L	0.01	<2.2
cis-1,3-Dichloropropylene	<0.01	ug/L	0.01	<2.2
Dichlorotetrafluoroethane	<0.050	ug/L	0.050	<7.2
1,4-Dioxane	<0.010	ug/L	0.010	<2.8
Ethylbenzene	<0.01	ug/L	0.01	<2.3
4-Ethyltoluene	<0.0098	ug/L	0.0098	<2.0
Hexachlorobutadiene	<0.050	ug/L	0.050	<4.7
2-Hexanone (MBK)	<0.049	ug/L	0.049	<12
Isopropanol (IPA)	<0.10	ug/L	0.10	<41
Methyl-tert-Butyl Ether (MTBE)	<0.010	ug/L	0.010	<2.8
Methylene Chloride	<0.049	ug/L	0.049	<14
4-Methyl-2-pentanone (MIBK)	<0.049	ug/L	0.049	<12
Styrene	<0.0098	ug/L	0.0098	<2.3
1,1,2,2-Tetrachloroethane	<0.050	ug/L	0.050	<7.3
Tetrachloroethylene (PCE)	<0.014	ug/L	0.014	<2.0
Toluene	<0.049	ug/L	0.049	<13
1,2,4-Trichlorobenzene	<0.020	ug/L	0.020	<2.7

[Signature]
Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACE-030619-0001

9C06025-01 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
1,1,2-Trichloroethane	<0.020	ug/L	0.020	<3.7 ppbv
1,1,1-Trichloroethane	<0.020	ug/L	0.020	<3.7 ppbv
Trichloroethylene (TCE)	<0.011	ug/L	0.011	<2.0 ppbv
Trichlorofluoromethane (R11)	<0.050	ug/L	0.050	<8.9 ppbv
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.050	ug/L	0.050	<6.5 ppbv
1,3,5-Trimethylbenzene	<0.0098	ug/L	0.0098	<2.0 ppbv
1,2,4-Trimethylbenzene	<0.0098	ug/L	0.0098	<2.0 ppbv
Vinyl acetate	<0.0099	ug/L	0.0099	<2.8 ppbv
Vinyl chloride	<0.01	ug/L	0.01	<3.9 ppbv
o-Xylene	<0.01	ug/L	0.01	<2.3 ppbv
m,p-Xylenes	<0.01	ug/L	0.01	<2.3 ppbv
1,2,3-Trichloropropane	<0.012	ug/L	0.012	<2.0 ppbv
Surrogates			%REC	%REC Limits
4-Bromofluorobenzene			106 %	70-130

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACM-030619-0001

9C06025-02 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
Acetone	<0.050	ug/L	0.050	<21
Benzene	<0.0096	ug/L	0.0096	<3.0
Benzyl chloride	<0.050	ug/L	0.050	<9.7
Bromodichloromethane	<0.050	ug/L	0.050	<7.5
Bromoform	<0.050	ug/L	0.050	<4.8
Bromomethane	<0.010	ug/L	0.010	<2.6
2-Butanone (MEK)	<0.050	ug/L	0.050	<17
Carbon Disulfide	<0.050	ug/L	0.050	<16
Carbon Tetrachloride	<0.013	ug/L	0.013	<2.1
Chlorobenzene	<0.010	ug/L	0.010	<2.2
Chloroethane	<0.010	ug/L	0.010	<3.8
Chloroform	<0.0098	ug/L	0.0098	<2.0
Chloromethane	<0.0099	ug/L	0.0099	<4.8
Dibromochloromethane	<0.020	ug/L	0.020	<2.3
1,2-Dibromoethane (EDB)	<0.020	ug/L	0.020	<2.6
1,2-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
1,3-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
1,4-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
Dichlorodifluoromethane (R12)	<0.049	ug/L	0.049	<10
1,1-Dichloroethane	0.020	ug/L	0.0081	4.8
1,2-Dichloroethane (EDC)	<0.010	ug/L	0.010	<2.5

[Signature]
Viorel Vasile

Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACM-030619-0001

9C06025-02 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
cis-1,2-Dichloroethylene	0.066	ug/L	0.0079	17 ppbv
1,1-Dichloroethylene	0.0079	ug/L	0.0079	2.0 ppbv
trans-1,1,2-Dichloroethylene	<0.0079	ug/L	0.0079	<2.0 ppbv
1,2-Dichloropropane	<0.010	ug/L	0.010	<2.2 ppbv
trans-1,3-Dichloropropylene	<0.01	ug/L	0.01	<2.2 ppbv
cis-1,3-Dichloropropylene	<0.01	ug/L	0.01	<2.2 ppbv
Dichlorotetrafluoroethane	<0.050	ug/L	0.050	<7.2 ppbv
1,4-Dioxane	<0.010	ug/L	0.010	<2.8 ppbv
Ethylbenzene	<0.01	ug/L	0.01	<2.3 ppbv
4-Ethyltoluene	<0.0098	ug/L	0.0098	<2.0 ppbv
Hexachlorobutadiene	<0.050	ug/L	0.050	<4.7 ppbv
2-Hexanone (MBK)	<0.049	ug/L	0.049	<12 ppbv
Isopropanol (IPA)	<0.10	ug/L	0.10	<41 ppbv
Methyl-tert-Butyl Ether (MTBE)	<0.010	ug/L	0.010	<2.8 ppbv
Methylene Chloride	<0.049	ug/L	0.049	<14 ppbv
4-Methyl-2-pentanone (MIBK)	<0.049	ug/L	0.049	<12 ppbv
Styrene	<0.0098	ug/L	0.0098	<2.3 ppbv
1,1,2,2-Tetrachloroethane	<0.050	ug/L	0.050	<7.3 ppbv
Tetrachloroethylene (PCE)	0.16	ug/L	0.014	24 ppbv
Toluene	<0.049	ug/L	0.049	<13 ppbv
1,2,4-Trichlorobenzene	<0.020	ug/L	0.020	<2.7 ppbv

[Signature]
Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACM-030619-0001

9C06025-02 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
1,1,2-Trichloroethane	<0.020	ug/L	0.020	<3.7 ppbv
1,1,1-Trichloroethane	<0.020	ug/L	0.020	<3.7 ppbv
Trichloroethylene (TCE)	0.15	ug/L	0.011	27 ppbv
Trichlorofluoromethane (R11)	<0.050	ug/L	0.050	<8.9 ppbv
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.050	ug/L	0.050	<6.5 ppbv
1,3,5-Trimethylbenzene	<0.0098	ug/L	0.0098	<2.0 ppbv
1,2,4-Trimethylbenzene	<0.0098	ug/L	0.0098	<2.0 ppbv
Vinyl acetate	<0.0099	ug/L	0.0099	<2.8 ppbv
Vinyl chloride	<0.01	ug/L	0.01	<3.9 ppbv
o-Xylene	<0.01	ug/L	0.01	<2.3 ppbv
m,p-Xylenes	<0.01	ug/L	0.01	<2.3 ppbv
1,2,3-Trichloropropane	<0.012	ug/L	0.012	<2.0 ppbv
Surrogates			%REC	%REC Limits
4-Bromofluorobenzene			99.0 %	70-130

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACI-030619-0001

9C06025-03 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
Acetone	<0.050	ug/L	0.050	<21
Benzene	<0.0096	ug/L	0.0096	<3.0
Benzyl chloride	<0.050	ug/L	0.050	<9.7
Bromodichloromethane	<0.050	ug/L	0.050	<7.5
Bromoform	<0.050	ug/L	0.050	<4.8
Bromomethane	<0.010	ug/L	0.010	<2.6
2-Butanone (MEK)	<0.050	ug/L	0.050	<17
Carbon Disulfide	<0.050	ug/L	0.050	<16
Carbon Tetrachloride	<0.013	ug/L	0.013	<2.1
Chlorobenzene	<0.010	ug/L	0.010	<2.2
Chloroethane	<0.010	ug/L	0.010	<3.8
Chloroform	<0.0098	ug/L	0.0098	<2.0
Chloromethane	<0.0099	ug/L	0.0099	<4.8
Dibromochloromethane	<0.020	ug/L	0.020	<2.3
1,2-Dibromoethane (EDB)	<0.020	ug/L	0.020	<2.6
1,2-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
1,3-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
1,4-Dichlorobenzene	<0.020	ug/L	0.020	<3.3
Dichlorodifluoromethane (R12)	<0.049	ug/L	0.049	<10
1,1-Dichloroethane	0.017	ug/L	0.0081	4.2
1,2-Dichloroethane (EDC)	<0.010	ug/L	0.010	<2.5

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACI-030619-0001

9C06025-03 (Vapor)

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19
Sampled: 03/06/19
Prepared: 03/08/19
Analyzed: 03/08/19

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
cis-1,2-Dichloroethylene	0.063	ug/L	0.0079	16
1,1-Dichloroethylene	<0.0079	ug/L	0.0079	<2.0
trans-1,2-Dichloroethylene	<0.0079	ug/L	0.0079	<2.0
1,2-Dichloropropane	<0.010	ug/L	0.010	<2.2
trans-1,3-Dichloropropylene	<0.01	ug/L	0.01	<2.2
cis-1,3-Dichloropropylene	<0.01	ug/L	0.01	<2.2
Dichlorotetrafluoroethane	<0.050	ug/L	0.050	<7.2
1,4-Dioxane	<0.010	ug/L	0.010	<2.8
Ethylbenzene	<0.01	ug/L	0.01	<2.3
4-Ethyltoluene	<0.0098	ug/L	0.0098	<2.0
Hexachlorobutadiene	<0.050	ug/L	0.050	<4.7
2-Hexanone (MBK)	<0.049	ug/L	0.049	<12
Isopropanol (IPA)	<0.10	ug/L	0.10	<41
Methyl-tert-Butyl Ether (MTBE)	<0.010	ug/L	0.010	<2.8
Methylene Chloride	<0.049	ug/L	0.049	<14
4-Methyl-2-pentanone (MIBK)	<0.049	ug/L	0.049	<12
Styrene	<0.0098	ug/L	0.0098	<2.3
1,1,2,2-Tetrachloroethane	<0.050	ug/L	0.050	<7.3
Tetrachloroethylene (PCE)	0.41	ug/L	0.014	61
Toluene	<0.049	ug/L	0.049	<13
1,2,4-Trichlorobenzene	<0.020	ug/L	0.020	<2.7

[Signature]
Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Matrix: Vapor
Dilution: 1
Method: VOCs by GCMS EPA TO-15

SVE-VGACI-030619-0001
9C06025-03 (Vapor)

Analyte	Result (ug/L)	MRL	Result (ppbv)	MRL
1,1,2-Trichloroethane	<0.020	ug/L	0.020	<3.7 ppbv
1,1,1-Trichloroethane	<0.020	ug/L	0.020	<3.7 ppbv
Trichloroethylene (TCE)	0.16	ug/L	0.011	30 ppbv
Trichlorofluoromethane (R11)	<0.050	ug/L	0.050	<8.9 ppbv
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.050	ug/L	0.050	<6.5 ppbv
1,3,5-Trimethylbenzene	<0.0098	ug/L	0.0098	<2.0 ppbv
1,2,4-Trimethylbenzene	<0.0098	ug/L	0.0098	<2.0 ppbv
Vinyl acetate	<0.0099	ug/L	0.0099	<2.8 ppbv
Vinyl chloride	<0.01	ug/L	0.01	<3.9 ppbv
o-Xylene	<0.01	ug/L	0.01	<2.3 ppbv
m,p-Xylenes	<0.01	ug/L	0.01	<2.3 ppbv
1,2,3-Trichloropropane	<0.012	ug/L	0.012	<2.0 ppbv
Surrogates			%REC	%REC Limits
4-Bromofluorobenzene			101 %	70-130

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client:	Haley & Aldrich (Oakland)	AA Project No:	A874345
Project No:	130072-024	Date Received:	03/06/19
Project Name:	Cooper Drum - South Gate	Date Reported:	03/15/19
Method:	VOCs by EPA TO-3 GC/MS	Units:	ppbv
Date Sampled:	03/06/19	Date Sampled:	03/06/19
Date Prepared:	03/08/19	Date Prepared:	03/08/19
Date Analyzed:	03/08/19	Date Analyzed:	03/08/19
AA ID No:	9C06025-01	AA ID No:	9C06025-02
Client ID No:	SVE-VGACE-0303	Client ID No:	SVE-VGACM-0306
Matrix:	619-0001	Matrix:	SVE-VGACI-030
Dilution Factor:	1	Dilution Factor:	1
TO-3 VOCs as Hexane (TO-3)		MRL	
TNmoc as Hexane	<1200	<1200	<1200
4-Bromofluorobenzene	106%	100%	102%
		%REC Limits	
		70-130	

[Signature]
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 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control									

Batch B9C0811 - *** DEFAULT PREP ***

Blank (B9C0811-BLK1)

Prepared & Analyzed: 03/08/19

Acetone	<21	21	ppbv						
Benzene	<3.0	3.0	ppbv						
Benzyl chloride	<9.7	9.7	ppbv						
Bromodichloromethane	<7.5	7.5	ppbv						
Bromoform	<4.8	4.8	ppbv						
Bromomethane	<2.6	2.6	ppbv						
2-Butanone (MEK)	<17	17	ppbv						
Carbon Disulfide	<16	16	ppbv						
Carbon Tetrachloride	<2.1	2.1	ppbv						
Chlorobenzene	<2.2	2.2	ppbv						
Chloroethane	<3.8	3.8	ppbv						
Chloroform	<2.0	2.0	ppbv						
Chloromethane	<4.8	4.8	ppbv						
Dibromochloromethane	<2.3	2.3	ppbv						
1,2-Dibromoethane (EDB)	<2.6	2.6	ppbv						
1,2-Dichlorobenzene	<3.3	3.3	ppbv						
1,3-Dichlorobenzene	<3.3	3.3	ppbv						
1,4-Dichlorobenzene	<3.3	3.3	ppbv						
Dichlorodifluoromethane (R12)	<10	10	ppbv						
1,1-Dichloroethane	<2.0	2.0	ppbv						
1,2-Dichloroethane (EDC)	<2.5	2.5	ppbv						
cis-1,2-Dichloroethylene	<2.0	2.0	ppbv						
1,1-Dichloroethylene	<2.0	2.0	ppbv						
trans-1,2-Dichloroethylene	<2.0	2.0	ppbv						
1,2-Dichloropropane	<2.2	2.2	ppbv						
trans-1,3-Dichloropropylene	<2.2	2.2	ppbv						
cis-1,3-Dichloropropylene	<2.2	2.2	ppbv						
Dichlorotetrafluoroethane	<7.2	7.2	ppbv						
1,4-Dioxane	<2.8	2.8	ppbv						
Ethylbenzene	<2.3	2.3	ppbv						
4-Ethyltoluene	<2.0	2.0	ppbv						
Hexachlorobutadiene	<4.7	4.7	ppbv						

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

VOCs by GCMS EPA TO-15 - Quality Control

Batch B9C0811 - *** DEFAULT PREP ***

Blank (B9C0811-BLK1) Continued

Prepared & Analyzed: 03/08/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
Batch B9C0811 - *** DEFAULT PREP ***										
2-Hexanone (MBK)	<12	12	ppbv							
Isopropanol (IPA)	<41	41	ppbv							
Methyl-tert-Butyl Ether (MTBE)	<2.8	2.8	ppbv							
Methylene Chloride	<14	14	ppbv							
4-Methyl-2-pentanone (MIBK)	<12	12	ppbv							
Styrene	<2.3	2.3	ppbv							
1,1,2,2-Tetrachloroethane	<7.3	7.3	ppbv							
Tetrachloroethylene (PCE)	<2.0	2.0	ppbv							
Toluene	<13	13	ppbv							
1,2,4-Trichlorobenzene	<2.7	2.7	ppbv							
1,1,2-Trichloroethane	<3.7	3.7	ppbv							
Trichloroethylene (TCE)	<2.0	2.0	ppbv							
Trichlorofluoromethane (R11)	<8.9	8.9	ppbv							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<6.5	6.5	ppbv							
1,3,5-Trimethylbenzene	<2.0	2.0	ppbv							
1,2,4-Trimethylbenzene	<2.0	2.0	ppbv							
Vinyl acetate	<2.8	2.8	ppbv							
Vinyl chloride	<3.9	3.9	ppbv							
o-Xylene	<2.3	2.3	ppbv							
m,p-Xylenes	<2.3	2.3	ppbv							
1,2,3-Trichloropropene	<2.0	2.0	ppbv							
Surrogate: 4-Bromofluorobenzene	20.5	ppbv	20		102	70-130				
LCS (B9C0811-B\$1)										
Acetone	36.6	21	ppbv	40	91.4	70-130	30			
Benzene	39.3	3.0	ppbv	40	98.3	70-130	30			
Benzyl chloride	44.2	9.7	ppbv	40	111	70-130	30			
Bromodichloromethane	41.3	7.5	ppbv	40	103	70-130	30			
Bromoform	45.6	4.8	ppbv	40	114	70-130	30			
Bromomethane	38.4	2.6	ppbv	40	95.9	70-130	30			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

VOCs by GCMS EPA TO-15 - Quality Control
*Batch B9C0811 - *** DEFAULT PREP ****

LCS (B9C0811-BS1) Continued

Prepared & Analyzed: 03/08/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
2-Butanone (MEK)	41.5	17	ppbv	40	104	70-130	30			
Carbon Disulfide	40.2	16	ppbv	40	101	70-130	30			
Carbon Tetrachloride	40.6	2.1	ppbv	40	101	70-130	30			
Chlorobenzene	40.5	2.2	ppbv	40	101	70-130	30			
Chloroethane	41.2	3.8	ppbv	40	103	70-130	30			
Chloroform	40.8	2.0	ppbv	40	102	70-130	30			
Chloromethane	39.5	4.8	ppbv	40	98.7	70-130	30			
Dibromochloromethane	43.0	2.3	ppbv	40	108	70-130	30			
1,2-Dibromoethane (EDB)	40.1	2.6	ppbv	40	100	70-130	30			
1,2-Dichlorobenzene	37.2	3.3	ppbv	40	92.9	70-130	30			
1,3-Dichlorobenzene	39.4	3.3	ppbv	40	98.6	70-130	30			
Dichlorodifluoromethane (R12)	32.6	10	ppbv	40	81.5	70-130	30			
1,1-Dichlorobenzene	37.7	3.3	ppbv	40	94.3	70-130	30			
1,1-Dichloroethane	38.2	2.0	ppbv	40	95.6	70-130	30			
1,2-Dichloroethane (EDC)	40.9	2.5	ppbv	40	102	70-130	30			
cis-1,2-Dichloroethylene	39.4	2.0	ppbv	40	98.6	70-130	30			
1,1-Dichloroethylene	37.5	2.0	ppbv	40	93.8	70-130	30			
trans-1,2-Dichloroethylene	40.4	2.0	ppbv	40	101	70-130	30			
1,2-Dichloropropane	40.2	2.2	ppbv	40	100	70-130	30			
trans-1,3-Dichloropropylene	41.5	2.2	ppbv	40	104	70-130	30			
cis-1,3-Dichloropropylene	40.5	2.2	ppbv	40	101	70-130	30			
Dichlorotetrafluoroethane	32.5	7.2	ppbv	40	81.3	70-130	30			
Ethylbenzene	39.1	2.3	ppbv	40	97.8	70-130	30			
4-Ethyltoluene	44.5	2.0	ppbv	40	111	70-130	30			
Hexachlorobutadiene	30.2	4.7	ppbv	40	75.4	70-130	30			
2-Hexanone (MBK)	51.2	12	ppbv	40	128	70-130	30			
Isopropanol (IPA)	45.9	41	ppbv	40	115	70-130	30			
Methylene Chloride	34.6	14	ppbv	40	86.5	70-130	30			
4-Methyl-2-pentanone (MIBK)	51.0	12	ppbv	40	127	70-130	30			
Styrene	39.7	2.3	ppbv	40	99.2	70-130	30			
1,1,2,2-Tetrachloroethane	28.8	7.3	ppbv	40	72.0	70-130	30			
Tetrachloroethylene (PCE)	37.6	2.0	ppbv	40	93.9	70-130	30			

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

VOCs by GCMS EPA TO-15 - Quality Control

Batch B9C0811 - *** DEFAULT PREP ***

LCS (B9C0811-BS1) Continued

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
Prepared & Analyzed: 03/08/19									
Toluene	39.3	13	ppbv	40	98.3	70-130	30		
1,2,4-Trichlorobenzene	29.9	2.7	ppbv	40	74.8	70-130	30		
1,1,2-Trichloroethane	40.2	3.7	ppbv	40	100	70-130	30		
1,1,1-Trichloroethane	40.9	3.7	ppbv	40	102	70-130	30		
Trichloroethylene (TCE)	35.0	2.0	ppbv	40	87.5	70-130	30		
Trichlorofluoromethane (R11)	40.0	8.9	ppbv	40	100	70-130	30		
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	40.7	6.5	ppbv	40	102	70-130	30		
1,3,5-Trimethylbenzene	39.2	2.0	ppbv	40	98.0	70-130	30		
1,2,4-Trimethylbenzene	37.6	2.0	ppbv	40	94.0	70-130	30		
Vinyl acetate	39.5	2.8	ppbv	40	98.8	70-130	30		
Vinyl chloride	41.1	3.9	ppbv	40	103	70-130	30		
o-Xylene	37.5	2.3	ppbv	40	93.8	70-130	30		
m,p-Xylenes	77.0	2.3	ppbv	80	96.2	70-130	30		
1,2,3-Trichloropropane	36.0	2.0	ppbv	40	89.9	70-130	30		
Surrogate: 4-Bromofluorobenzene	23.5		ppbv	20	118	70-130			
Prepared & Analyzed: 03/08/19									
LCS Dup (B9C0811-BSD1)									
Acetone	38.5	21	ppbv	40	96.2	70-130	5.17	30	
Benzene	39.8	3.0	ppbv	40	99.4	70-130	1.16	30	
Benzyl chloride	43.0	9.7	ppbv	40	108	70-130	2.75	30	
Bromodichloromethane	42.2	7.5	ppbv	40	105	70-130	2.16	30	
Bromoform	45.0	4.8	ppbv	40	113	70-130	1.37	30	
Bromomethane	39.1	2.6	ppbv	40	97.7	70-130	1.86	30	
2-Butanone (MEK)	42.2	17	ppbv	40	105	70-130	1.63	30	
Carbon Disulfide	40.3	16	ppbv	40	101	70-130	0.298	30	
Carbon Tetrachloride	43.7	2.1	ppbv	40	109	70-130	7.52	30	
Chlorobenzene	39.4	2.2	ppbv	40	98.4	70-130	2.91	30	
Chloroethane	40.3	3.8	ppbv	40	101	70-130	2.28	30	
Chloroform	42.2	2.0	ppbv	40	105	70-130	3.35	30	
Chloromethane	39.8	4.8	ppbv	40	99.6	70-130	0.883	30	
Dibromochloromethane	44.2	2.3	ppbv	40	110	70-130	2.64	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
<i>Batch B9C0811 - *** DEFAULT PREP ***</i>										
LCS Dup (B9C0811-BSD1) Continued										
							Prepared & Analyzed: 03/08/19			
1,2-Dibromoethane (EDB)	41.3	2.6	ppbv	40	103	70-130	2.83	30		
1,2-Dichlorobenzene	36.3	3.3	ppbv	40	90.8	70-130	2.29	30		
1,3-Dichlorobenzene	33.9	3.3	ppbv	40	84.7	70-130	15.2	30		
1,4-Dichlorobenzene	36.9	3.3	ppbv	40	92.4	70-130	2.09	30		
Dichlorodifluoromethane (R12)	35.9	10	ppbv	40	89.8	70-130	9.63	30		
1,1-Dichloroethane	39.8	2.0	ppbv	40	99.4	70-130	3.90	30		
1,2-Dichloroethylene (EDC)	44.2	2.5	ppbv	40	111	70-130	7.89	30		
cis-1,2-Dichloroethylene	41.0	2.0	ppbv	40	102	70-130	3.90	30		
1,1-Dichloroethylene	40.2	2.0	ppbv	40	101	70-130	7.02	30		
trans-1,2-Dichloroethylene	41.6	2.0	ppbv	40	104	70-130	2.85	30		
1,2-Dichloropropane	39.4	2.2	ppbv	40	98.6	70-130	1.91	30		
trans-1,3-Dichloropropylene	41.6	2.2	ppbv	40	104	70-130	0.168	30		
cis-1,3-Dichloropropylene	39.5	2.2	ppbv	40	98.7	70-130	2.55	30		
Dichlortetrafluoroethane	36.6	7.2	ppbv	40	91.6	70-130	11.9	30		
Ethylbenzene	36.7	2.3	ppbv	40	91.8	70-130	6.35	30		
4-Ethyltoluene	43.0	2.0	ppbv	40	108	70-130	3.38	30		
Hexachlorobutadiene	30.9	4.7	ppbv	40	77.3	70-130	2.49	30		
2-Hexanone (MVK)	49.0	12	ppbv	40	123	70-130	4.35	30		
Isopropanol (IPA)	46.5	41	ppbv	40	116	70-130	1.32	30		
Methylene Chloride	34.7	14	ppbv	40	86.8	70-130	0.375	30		
4-Methyl-2-pentanone (MIBK)	51.9	12	ppbv	40	130	70-130	1.81	30		
Styrene	38.3	2.3	ppbv	40	95.7	70-130	3.54	30		
1,1,2,2-Tetrachloroethane	31.4	7.3	ppbv	40	78.4	70-130	8.47	30		
Tetrachloroethylene (PCE)	39.2	2.0	ppbv	40	98.0	70-130	4.27	30		
Toluene	39.4	13	ppbv	40	98.6	70-130	0.254	30		
1,2,4-Trichlorobenzene	30.2	2.7	ppbv	40	75.5	70-130	0.965	30		
1,1,2-Trichloroethane	40.8	3.7	ppbv	40	102	70-130	1.61	30		
1,1,1-Trichloroethane	43.7	3.7	ppbv	40	109	70-130	6.55	30		
Trichloroethylene (TCE)	36.6	2.0	ppbv	40	91.6	70-130	4.61	30		
Trichlorofluoromethane (R11)	42.6	8.9	ppbv	40	107	70-130	6.39	30		
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	43.8	6.5	ppbv	40	110	70-130	7.50	30		

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

VOCs by GCMS EPA TO-15 - Quality Control
*Batch B9C0811 - *** DEFAULT PREP ****

LCS Dup (B9C0811-BSD1) Continued

Prepared & Analyzed: 03/08/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene										
Duplicate (B9C0811-DUP1)										
Acetone	<840	840	ppbv	20	108	70-130				
Benzene	144	120	ppbv	150						30
Benzyl chloride	<390	390	ppbv							30
Bromodichloromethane	<300	300	ppbv							30
Bromoform	<190	190	ppbv							30
Bromomethane	<100	100	ppbv							30
2-Butanone (MEK)	<680	680	ppbv							30
Carbon Disulfide	<640	640	ppbv							30
Carbon Tetrachloride	<84	84	ppbv							30
Chlorobenzene	<88	88	ppbv							30
Chloroethane	<150	150	ppbv							30
Chloroform	<80	80	ppbv							30
Chloromethane	<190	190	ppbv							30
Dibromochloromethane	<92	92	ppbv							30
1,2-Dibromoethane (EDB)	<100	100	ppbv							30
1,2-Dichlorobenzene	<130	130	ppbv							30
1,3-Dichlorobenzene	<130	130	ppbv							30
1,4-Dichlorobenzene	<130	130	ppbv							30
Dichlorodifluoromethane (R12)	<400	400	ppbv							30
1,1-Dichloroethane	<80	80	ppbv							30
1,2-Dichloroethane (EDC)	<100	100	ppbv							30
cis-1,2-Dichloroethylene	<80	80	ppbv							30

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
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VOCs by GCMS EPA TO-15 - Quality Control

Batch B9C0811 - *** DEFAULT PREP ***

Duplicate (B9C0811-DUP1) Continued	Source: 9B22005-02 Prepared & Analyzed: 03/08/19
1,1-Dichloroethylene	<80 80 ppbv
trans-1,2-Dichloroethylene	<80 80 ppbv
1,2-Dichloropropane	<88 88 ppbv
trans-1,3-Dichloropropylene	<88 88 ppbv
cis-1,3-Dichloropropylene	<88 88 ppbv
Dichlorotetrafluoroethane	<290 290 ppbv
1,4-Dioxane	<110 110 ppbv
Ethylbenzene	305 92 ppbv
4-Ethyltoluene	<80 80 ppbv
Hexachlorobutadiene	<190 190 ppbv
2-Hexanone (MBK)	<480 480 ppbv
Isopropanol (IPA)	<1600 1600 ppbv
Methyl-tert-Butyl Ether (MTBE)	<110 110 ppbv
Methylene Chloride	<560 560 ppbv
4-Methyl-2-pentanone (MIBK)	<480 480 ppbv
Styrene	<92 92 ppbv
1,1,2,2-Tetrachloroethane	<290 290 ppbv
Tetrachloroethylene (PCE)	<80 80 ppbv
Toluene	<520 520 ppbv
1,2,4-Trichlorobenzene	<110 110 ppbv
1,1,2-Trichloroethane	<150 150 ppbv
1,1,1-Trichloroethane	<150 150 ppbv
Trichloroethylene (TCE)	<80 80 ppbv
Trichlorofluoromethane (R11)	<360 360 ppbv
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<260 260 ppbv
1,3,5-Trimethylbenzene	<80 80 ppbv
1,2,4-Trimethylbenzene	<80 80 ppbv
Vinyl acetate	<110 110 ppbv
Vinyl chloride	<160 160 ppbv
o-Xylene	<92 92 ppbv
m,p-Xylenes	92 30 ppbv

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source	%REC	RPD	RPD Limit	Notes
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VOCs by GCMS EPA TO-15 - Quality Control

Batch B9C0811 - *** DEFAULT PREP ***

Duplicate (B9C0811-DUP1) Continued **Source:** 9B22005-02 Prepared & Analyzed: 03/08/19

1,2,3-Trichloropropane

<80

80

ppbv

105

70-130

30

Surrogate: 4-Bromofluorobenzene

21.0

Source: 9C06025-01

Prepared & Analyzed: 03/08/19

Acetone	<21	21	ppbv	<21					30
Benzene	<3.0	3.0	ppbv	<3.0					30
Benzyl chloride	<9.7	9.7	ppbv	<9.7					30
Bromodichloromethane	<7.5	7.5	ppbv	<7.5					30
Bromoform	<4.8	4.8	ppbv	<4.8					30
Bromomethane	<2.6	2.6	ppbv	<2.6					30
2-Butanone (MEK)	<17	17	ppbv	<17					30
Carbon Disulfide	<16	16	ppbv	<16					30
Carbon Tetrachloride	<2.1	2.1	ppbv	<2.1					30
Chlorobenzene	<2.2	2.2	ppbv	<2.2					30
Chloroethane	<3.8	3.8	ppbv	<3.8					30
Chloroform	<2.0	2.0	ppbv	<2.0					30
Chloromethane	<4.8	4.8	ppbv	<4.8					30
Dibromochloromethane	<2.3	2.3	ppbv	<2.3					30
1,2-Dibromoethane (EDB)	<2.6	2.6	ppbv	<2.6					30
1,2-Dichlorobenzene	<3.3	3.3	ppbv	<3.3					30
1,3-Dichlorobenzene	<3.3	3.3	ppbv	<3.3					30
1,4-Dichlorobenzene	<3.3	3.3	ppbv	<3.3					30
Dichlorodifluoromethane (R12)	<10	10	ppbv	<10					30
1,1-Dichloroethane	3.08	2.0	ppbv	3.00	2.63				30
1,2-Dichloroethylene (EDC)	<2.5	2.5	ppbv	<2.5					30
cis-1,2-Dichloroethylene	9.49	2.0	ppbv	9.55	0.630	30			
1,1-Dichloroethylene	<2.0	2.0	ppbv	1.20	1.65	30			
trans-1,2-Dichloroethylene	<2.0	2.0	ppbv	0.830	11.4	30			
1,2-Dichloropropane	<2.2	2.2	ppbv	<2.2					30
trans-1,3-Dichloropropylene	<2.2	2.2	ppbv	<2.2					30
cis-1,3-Dichloropropylene	<2.2	2.2	ppbv	<2.2					30
Dichlortetrafluoroethane	<7.2	7.2	ppbv	<7.2					30

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

VOCs by GCMS EPA TO-15 - Quality Control

Batch B9C0811 - *** DEFAULT PREP ***

Duplicate (B9C0811-DUP2) Continued Source: 9C06025-01 Prepared & Analyzed: 03/08/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result %REC	%REC Limits	RPD	RPD Limit	Notes
1,4-Dioxane	<2.8	2.8	ppbv	<2.8			30		
Ethylbenzene	<2.3	2.3	ppbv	<2.3			30		
4-Ethyltoluene	<2.0	2.0	ppbv	<2.0			30		
Hexachlorobutadiene	<4.7	4.7	ppbv	<4.7			30		
2-Hexanone (MBK)	<12	12	ppbv	<12			30		
Isopropanol (IPA)	<41	41	ppbv	<41			30		
Methyl-tert-Butyl Ether (MTBE)	<2.8	2.8	ppbv	<2.8			30		
Methylene Chloride	<14	14	ppbv	<14			30		
4-Methyl-2-pentanone (MIBK)	<12	12	ppbv	<12			30		
Styrene	<2.3	2.3	ppbv	<2.3			30		
1,1,2,2-Tetrachloroethane	<7.3	7.3	ppbv	<7.3			30		
Tetrachloroethylene (PCE)	<2.0	2.0	ppbv	<2.0			30		
Toluene	<13	13	ppbv	1.77			30		
1,2,4-Trichlorobenzene	<2.7	2.7	ppbv	<2.7			30		
1,1,2-Trichloroethane	<3.7	3.7	ppbv	<3.7			30		
1,1,1-Trichloroethane	<3.7	3.7	ppbv	<3.7			30		
Trichloroethylene (TCE)	<2.0	2.0	ppbv	<2.0			30		
Trichlorofluoromethane (R11)	<8.9	8.9	ppbv	<8.9			30		
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<6.5	6.5	ppbv	<6.5			30		
1,3,5-Trimethylbenzene	<2.0	2.0	ppbv	<2.0			30		
1,2,4-Trimethylbenzene	<2.0	2.0	ppbv	<2.0			30		
Vinyl acetate	<2.8	2.8	ppbv	<2.8			30		
Vinyl chloride	<3.9	3.9	ppbv	<3.9			30		
o-Xylene	<2.3	2.3	ppbv	<2.3			30		
m,p-Xylenes	<2.3	2.3	ppbv	<2.3			30		
1,2,3-Trichloropropane	<2.0	2.0	ppbv	<2.0			30		
Surrogate: 4-Bromofluorobenzene	20.9		ppbv	20	104	70-130			

VOCs by EPA TO-3 GC/MS - Quality Control

Batch B9C1127 - *** DEFAULT PREP ***

Blank (B9C1127-BLK1)

Prepared & Analyzed: 03/08/19

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by EPA TO-3 GC/MS - Quality Control

Batch B9C1127 - *** DEFAULT PREP ***

Blank (B9C1127-BLK1) Continued

TNMOCl as Hexane	<1200	1200	ppbv		Prepared & Analyzed: 03/08/19				
Surrogate: 4-Bromofluorobenzene	5.04		ppbv	5.0	101	70-130			
LCS (B9C1127-BS1)					Prepared & Analyzed: 03/08/19				
GRO as Hexane	256	1200	ppbv	200	128	70-130			
Surrogate: 4-Bromofluorobenzene	5.26		ppbv	5.0	105	70-130			
LCS Dup (B9C1127-BSD1)					Prepared & Analyzed: 03/08/19				
GRO as Hexane	240	1200	ppbv	200	120	70-130	6.49	30	
Surrogate: 4-Bromofluorobenzene	5.24		ppbv	5.0	105	70-130			
Duplicate (B9C1127-DUP1)					Source: 9C06025-01 Prepared & Analyzed: 03/08/19				
TNMOCl as Hexane	<1200	1200	ppbv		<1200				
GRO as Hexane	<1200	1200	ppbv						
Surrogate: 4-Bromofluorobenzene	5.20		ppbv	5.0	104	70-130			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874345
Date Received: 03/06/19
Date Reported: 03/15/19

Special Notes

A handwritten signature in black ink, appearing to read 'Vasile' or a similar name.

Viorel Vasile
Operations Manager



AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311

Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 17688

70055192

Page 1 of 1

Client: Alex & Alison / JTA Environmental	Project Name / No.: Cooper Drum	Sampler's Name: Alex Faux
Project Manager: Chris Simios / Matt Hulman	Site Address: 9313 Rayo Ave	Sampler's Signature: Alex Faux
Phone: 714-371-1820 / 714-392-5970	City: South Gate	P.O. No.:
Fax: 949-4553-1047	State & Zip: CA	Quote No.:

TAT Turnaround Codes **

- | | |
|-------------------|------------------------------------|
| ① = Same Day Rush | ④ = 72 Hour Rush |
| ② = 24 Hour Rush | ⑤ = 5 Day Rush |
| ③ = 48 Hour Rush | X = 10 Working Days (Standard TAT) |

ANALYSIS REQUESTED (Test Name)

M	15												
R													
R													
R													
R													

Special Instructions

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont.	Please enter the TAT Turnaround Codes ** below								9COGO25-01
SVE-VGAC-E-030619-0001		3-6-19	1045	VAPOR	1	X	X							
SVE-VGAC-N-030619-0001		3-6-19	1100	VAPOR	1	X	X							-02
SVE-VGAC-I-030619-0001		3-6-19	1110	VAPOR	1	X	X							-03

For Laboratory Use					Relinquished by	Date	Time	Received by
PRIORITY Rush Date: <u>3/6/19</u> Hrs: <u>1530</u> SH <u>✓</u> Sign: <u>J. E. Bell</u>						03/06/19	1245	
						3/6/19	14:20	
						Date	Time	Received by

A.A. Project No.: A874345/9COGO25

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 45 days following the submittal of the sample(s) to American Analytics.

ATTACHMENT B

Groundwater Treatment System Laboratory Analytical Report



9765 Eton Avenue
Chatsworth
California 91311
Tel: (818) 998-5547
Fax: (818) 998-7258

April 04, 2019

Peter Bennett
Haley & Aldrich (Oakland)
1956 Webster St., Suite 450
Oakland, CA 94612

Re : Cooper Drum - South Gate / 130072-024
A874347 / 9C20007

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 03/20/19 14:50 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report or require additional information please call me at American Analytics.

Sincerely,

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
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8260B

EW-INF-032019-0001	9C20007-01	Water	5	03/20/19 10:05	03/20/19 14:50
TOTAL-EFF-032019-0001	9C20007-02	Water	5	03/20/19 09:50	03/20/19 14:50

8270CM 1,4-Dioxane Only

EW-INF-032019-0001	9C20007-01	Water	5	03/20/19 10:05	03/20/19 14:50
TOTAL-EFF-032019-0001	9C20007-02	Water	5	03/20/19 09:50	03/20/19 14:50

A handwritten signature in black ink, appearing to read 'Viorel Vasile'.

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: EPA 8270CM 1,4-Dioxane

AA I.D. No. **Client I.D. No.** **Sampled** **Prepared** **Analyzed** **Dilution** **Result** **Units** **MDL** **MRL**

8270CM 1,4-Dioxane Only (EPA 8270CM)

9C20007-01	EW-INF-032019-00	03/20/19	03/25/19	03/27/19	1	4.8	ug/L	1	2
9C20007-02	TOTAL-EFF-03201	03/20/19	03/25/19	03/27/19	1	4.9	ug/L	1	2

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

[Signature]

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: VOCs by GC/MS

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19
Units: ug/L

Date Sampled: 03/20/19 03/20/19
Date Prepared: 04/02/19 04/02/19
Date Analyzed: 04/02/19 04/02/19
AA ID No: 9C20007-01 9C20007-02
Client ID No: EW-INF-032019- TOTAL-EFF-03201
Matrix: 0001 Water 9-0001 Water

Matrix:

Dilution Factor:

8260B (EPA 8260B)

		MDL	MRL
Acetone	<2.0	<2.0	2.0
Benzene	<0.20	<0.20	0.20
Bromobenzene	<0.30	<0.30	0.30
Bromodichloromethane	<0.50	<0.50	0.50
Bromoform	<0.20	<0.20	0.20
Bromomethane	<0.50	<0.50	0.50
2-Butanone (MEK)	<0.50	<0.50	0.50
tert-Butylbenzene	<2.0	<2.0	2.0
n-Butylbenzene	<0.20	<0.20	0.20
sec-Butylbenzene	<0.20	<0.20	0.20
Carbon Disulfide	<0.20	<0.20	0.20
Carbon Tetrachloride	<0.20	<0.20	0.20
Chlorobenzene	<0.20	<0.20	0.20
Chloroethane	<0.30	<0.30	0.30
Chloroform	<0.30	<0.30	0.30
Chloromethane	<0.30	<0.30	0.30
4-Chlorotoluene	<0.30	<0.30	0.30
2-Chlorotoluene	<0.30	<0.30	0.30
1,2-Dibromo-3-chloropropane	<0.40	<0.40	0.40
Dibromochloromethane	<0.30	<0.30	0.30
1,2-Dibromoethane (EDB)	<0.30	<0.30	0.30
Dibromomethane	<0.40	<0.40	0.40
1,3-Dichlorobenzene	<0.40	<0.40	0.40
1,4-Dichlorobenzene	<0.10	<0.10	0.10
1,2-Dichlorobenzene	<0.30	<0.30	0.30

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: VOCs by GC/MS

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19
Units: ug/L

Date Sampled:	03/20/19	Date Analyzed:	03/20/19
Date Prepared:	04/02/19	AA ID No:	9C20007-01
Client ID No:	EW-INF-032019- TOTAL-EFF-03201	Matrix:	Water
Dilution Factor:	1		
		MDL	MRL

8260B (EPA 8260B) (continued)

Dichlorodifluoromethane (R12)	<0.50	<0.50	0.50
1,1-Dichloroethane	1.1	0.80	0.20
cis-1,2-Dichloroethylene	1.6	1.5	0.30
1,1-Dichloroethylene	25	21	0.20
trans-1,2-Dichloroethylene	<0.30	<0.30	0.50
1,3-Dichloropropane	4.9	3.8	0.40
1,2-Dichloropropane	<0.50	<0.50	0.50
2,2-Dichloropropane	<0.40	<0.40	0.40
trans-1,3-Dichloropropylene	<0.20	<0.20	0.20
1,1-Dichloropropylene	<0.20	<0.20	0.20
cis-1,3-Dichloropropylene	<0.20	<0.20	0.20
Ethylbenzene	<0.20	<0.20	0.20
Hexachlorobutadiene	<0.40	<0.40	0.40
2-Hexanone (MBK)	<2.0	<2.0	2.0
Isopropylbenzene	<0.20	<0.20	0.20
4-Isopropyltoluene	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<1.7	<1.7	1.7
Methylene Chloride	<5.0	<5.0	5.0
Naphthalene	<0.70	<0.70	0.70
n-Propylbenzene	<0.20	<0.20	0.20
Styrene	<0.20	<0.20	0.20
1,1,1,2-Tetrachloroethane	<0.40	<0.40	0.40
1,1,2,2-Tetrachloroethane	<0.30	<0.30	0.30
Tetrachloroethylene (PCE)	<0.50	<0.50	0.50

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 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: VOCs by GC/MS

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19
Units: ug/L

Date Sampled:	03/20/19	Date Analyzed:	03/20/19
Date Prepared:	04/02/19	AA ID No:	04/02/19
Client ID No:	9C20007-01	Matrix:	9C20007-02
Matrix:	EW-INF-032019- TOTAL-EFF-03201	Dilution Factor:	1
	0001		1
	Water		MDL
	9-0001		MRL
	Water		

8260B (EPA 8260B) (continued)

Toluene	<0.30	<0.30	0.30	0.50
1,2,4-Trichlorobenzene	<0.20	<0.20	0.20	0.50
1,2,3-Trichlorobenzene	<0.20	<0.20	0.20	0.50
1,1,2-Trichloroethane	<0.30	<0.30	0.30	0.50
1,1,1-Trichloroethane	<0.30	<0.30	0.30	0.50
Trichloroethylene (TCE)	0.80	0.53	0.20	0.50
Trichlorofluoromethane (R11)	<0.20	<0.20	0.20	0.50
1,2,3-Trichloropropane	<0.30	<0.30	0.30	0.50
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.30	<0.30	0.30	0.50
1,2,4-Trimethylbenzene	<0.30	<0.30	0.30	0.50
1,3,5-Trimethylbenzene	<0.20	<0.20	0.20	0.50
Vinyl chloride	1.3	<0.50	0.50	0.50
o-Xylene	<0.30	<0.30	0.30	0.50
m,p-Xylenes	<0.40	<0.40	0.40	1.0

Surrogates

		%REC Limits
4-Bromofluorobenzene	104%	104% 70-140
Dibromofluoromethane	99%	116% 70-140
Toluene-d8	103%	101% 70-140

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 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Notes
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EPA 8270CM 1,4-Dioxane - Quality Control

Batch B9C2521 - EPA 3510C_MS

Blank (B9C2521-BLK1)

1,4-Dioxane

LCS (B9C2521-BS1)

1,4-Dioxane

LCS Dup (B9C2521-BSD1)

1,4-Dioxane

VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Blank (B9D0213-BLK1)

Acetone

Benzene

Bromobenzene

Bromoform

Bromomethane

Bromodichloromethane

Bromoform

Bromomethane

2-Butanone (MEK)

tert-Butylbenzene

n-Butylbenzene

sec-Butylbenzene

Carbon Disulfide

Carbon Tetrachloride

Chlorobenzene

Chloroethane

Chloroform

Chloromethane

4-Chlorotoluene

2-Chlorotoluene

1,2-Dibromo-3-chloropropane

Dibromochloromethane

1,2-Dibromoethane (EDB)

Dibromomethane

Prepared: 03/25/19 Analyzed: 03/27/19

Prepared: 03/25/19 Analyzed: 03/27/19

Prepared: 03/25/19 Analyzed: 03/27/19

Prepared & Analyzed: 04/02/19

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LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result %REC	%REC Limits	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Blank (B9D0213-BLK1) Continued

Prepared & Analyzed: 04/02/19

1,3-Dichlorobenzene	<0.10	0.10	ug/L						
1,4-Dichlorobenzene	<0.30	0.30	ug/L						
1,2-Dichlorobenzene	<0.30	0.30	ug/L						
Dichlorodifluoromethane (R12)	<0.50	0.50	ug/L						
1,1-Dichloroethane	<0.20	0.20	ug/L						
1,2-Dichloroethane (EDC)	<0.30	0.30	ug/L						
cis-1,2-Dichloroethylene	<0.20	0.20	ug/L						
1,1-Dichloroethylene	<0.30	0.30	ug/L						
trans-1,2-Dichloroethylene	<0.40	0.40	ug/L						
1,3-Dichloropropane	<0.10	0.10	ug/L						
1,2-Dichloropropane	<0.50	0.50	ug/L						
2,2-Dichloropropane	<0.40	0.40	ug/L						
trans-1,3-Dichloropropylene	<0.20	0.20	ug/L						
cis-1,3-Dichloropropylene	<0.20	0.20	ug/L						
Ethylbenzene	<0.20	0.20	ug/L						
Hexachlorobutadiene	<0.40	0.40	ug/L						
2-Hexanone (MVK)	<2.0	2.0	ug/L						
Isopropylbenzene	<0.20	0.20	ug/L						
4-Isopropyltoluene	<0.20	0.20	ug/L						
Methyl-tert-Butyl Ether (MTBE)	<1.7	1.7	ug/L						
Methylene Chloride	<5.0	5.0	ug/L						
4-Methyl-2-pentanone (MIBK)	<0.70	0.70	ug/L						
Naphthalene	<0.20	0.20	ug/L						
n-Propylbenzene	<0.20	0.20	ug/L						
Styrene	<0.20	0.20	ug/L						
1,1,1,2-Tetrachloroethane	<0.40	0.40	ug/L						
1,1,2,2-Tetrachloroethane	<0.30	0.30	ug/L						
Tetrachloroethylene (PCE)	<0.50	0.50	ug/L						
Toluene	<0.30	0.30	ug/L						
1,2,4-Trichlorobenzene	<0.20	0.20	ug/L						
1,2,3-Trichlorobenzene	<0.20	0.20	ug/L						

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Blank (B9D0213-BLK1) Continued

Prepared & Analyzed: 04/02/19

1,1,2-Trichloroethane	<0.30	0.30	ug/L						
1,1,1-Trichloroethane	<0.30	0.30	ug/L						
Trichloroethylene (TCE)	<0.20	0.20	ug/L						
Trichlorofluoromethane	<0.20	0.20	ug/L						
1,2,3-Trichloropropane	<0.30	0.30	ug/L						
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.30	0.30	ug/L						
1,2,4-Trimethylbenzene	<0.30	0.30	ug/L						
1,3,5-Trimethylbenzene	<0.20	0.20	ug/L						
Vinyl chloride	<0.50	0.50	ug/L						
o-Xylene	<0.30	0.30	ug/L						
m,p-Xylenes	<0.40	0.40	ug/L						
Surrogate: 4-Bromofluorobenzene	52.3	50	ug/L						
Surrogate: Dibromofluoromethane	51.9	50	ug/L						
Surrogate: Toluene-d8	52.9	50	ug/L						
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LCS (B9D0213-B-S1)				Prepared & Analyzed: 04/02/19					
Acetone	9.40	2.0	ug/L	20	47.0	50-150			****, J
Benzene	20.4	0.20	ug/L	20	102	75-125			
Bromobenzene	21.2	0.30	ug/L	20	106	50-150			
Bromoform	20.9	0.50	ug/L	20	104	50-150			
Bromochloromethane	20.5	0.20	ug/L	20	102	75-125			
Bromomethane	22.0	0.50	ug/L	20	110	75-125			
2-Butanone (MEK)	21.0	0.50	ug/L	20	105	75-125			
tert-Butylbenzene	22.8	2.0	ug/L	20	114	50-150			
n-Butylbenzene	21.7	0.20	ug/L	20	108	50-150			
sec-Butylbenzene	21.0	0.20	ug/L	20	105	50-150			
Carbon Disulfide	25.1	0.30	ug/L	20	105	50-150			
Carbon Tetrachloride	21.1	0.30	ug/L	20	106	75-125			
Chlorobenzene	20.6	0.30	ug/L	20	103	75-125			
Chloroethane	23.6	0.50	ug/L	20	118	75-125			

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
VOCs by GC/MS - Quality Control										
<i>Batch B9D0213 - EPA 5030B</i>										
LCS (B9D0213-BS1) Continued										
							Prepared & Analyzed: 04/02/19			
Chloroform	18.8	0.30	ug/L	20		93.8	75-125			
Chloromethane	20.2	0.40	ug/L	20		101	65-125			
4-Chlorotoluene	21.0	0.20	ug/L	20		105	65-125			
2-Chlorotoluene	21.0	0.30	ug/L	20		105	65-125			
1,2-Dibromo-3-chloropropane	21.0	0.40	ug/L	20		105	65-125			
Dibromochloromethane	20.2	0.30	ug/L	20		101	75-125			
1,2-Dibromoethane (EDB)	21.2	0.30	ug/L	20		106	65-125			
Dibromomethane	19.3	0.40	ug/L	20		96.5	65-125			
1,3-Dichlorobenzene	20.6	0.10	ug/L	20		103	65-125			
1,4-Dichlorobenzene	21.0	0.30	ug/L	20		105	75-125			
1,2-Dichlorobenzene	21.5	0.30	ug/L	20		107	65-125			
Dichlorodifluoromethane (R12)	14.7	0.50	ug/L	20		73.7	50-150			
1,1-Dichloroethane	19.0	0.20	ug/L	20		95.0	70-125			
1,2-Dichloroethane (EDC)	18.9	0.30	ug/L	20		94.4	75-125			
cis-1,2-Dichloroethylene	19.9	0.20	ug/L	20		99.4	75-125			
1,1-Dichloroethylene	22.8	0.30	ug/L	20		114	70-130			
trans-1,2-Dichloroethylene	20.2	0.40	ug/L	20		101	75-125			
1,3-Dichloropropene	19.8	0.10	ug/L	20		98.8	65-125			
1,2-Dichloropropane	20.5	0.50	ug/L	20		103	75-130			
2,2-Dichloropropane	18.8	0.40	ug/L	20		94.2	65-125			
trans-1,3-Dichloropropylene	20.4	0.20	ug/L	20		102	65-125			
1,1-Dichloropropylene	21.0	0.20	ug/L	20		105	65-125			
cis-1,3-Dichloropropylene	20.5	0.20	ug/L	20		103	75-125			
Ethylbenzene	20.9	0.20	ug/L	20		104	75-125			
Hexachlorobutadiene	22.4	0.40	ug/L	20		112	65-125			
2-Hexanone (MBK)	20.5	2.0	ug/L	20		102	65-125			
Isopropylbenzene	21.6	0.20	ug/L	20		108	65-125			
4-Isopropyltoluene	21.2	0.20	ug/L	20		106	65-125			
Methyl-tert-Butyl Ether (MTBE)	44.8	1.7	ug/L	40		112	75-125			
Methylene Chloride	19.2	5.0	ug/L	20		96.1	75-130			
4-Methyl-2-pentanone (MIBK)	20.2	0.70	ug/L	20		101	65-125			
Naphthalene	21.5	0.20	ug/L	20		107	65-125			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

LCS (B9D0213-B1) Continued

Prepared & Analyzed: 04/02/19

n-Propylbenzene	21.6	0.20	ug/L	20	108	65-125			
Styrene	20.9	0.20	ug/L	20	104	65-125			
1,1,1,2-Tetrachloroethane	20.6	0.40	ug/L	20	103	65-125			
1,1,2,2-Tetrachloroethane	21.3	0.30	ug/L	20	107	70-135			
Tetrachloroethylene (PCE)	21.3	0.50	ug/L	20	106	75-125			
Toluene	20.3	0.30	ug/L	20	102	75-125			
1,2,3-Trichlorobenzene	21.7	0.20	ug/L	20	108	65-125			
1,1,2-Trichloroethane	20.3	0.30	ug/L	20	101	75-125			
1,1,1-Trichloroethane	21.0	0.30	ug/L	20	105	75-125			
Trichloroethylene (TCE)	22.0	0.20	ug/L	20	110	75-125			
Trichlorofluoromethane (R11)	16.7	0.20	ug/L	20	83.6	65-125			
1,2,3-Trichloropropene	21.2	0.30	ug/L	20	106	65-125			
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	20.0	0.30	ug/L	20	100	65-125			
1,2,4-Trimethylbenzene	21.5	0.30	ug/L	20	108	65-125			
1,3,5-Trimethylbenzene	21.6	0.20	ug/L	20	108	65-125			
Vinyl chloride	17.9	0.50	ug/L	20	89.5	75-125			
o-Xylene	21.3	0.30	ug/L	20	106	75-125			
m,p-Xylenes	43.0	0.40	ug/L	40	108	65-125			
Surrogate: 4-Bromofluorobenzene	53.6		ug/L	50	107	70-140			
Surrogate: Dibromofluoromethane	48.4		ug/L	50	96.9	70-140			
Surrogate: Toluene-d8	51.7		ug/L	50	103	70-140			
Prepared & Analyzed: 04/02/19									
LCS Dup (B9D0213-BSD1)									
Acetone	10.6	2.0	ug/L	20	52.8	50-150	11.6	30	
Benzene	21.3	0.20	ug/L	20	107	75-125	4.65	30	
Bromobenzene	21.3	0.30	ug/L	20	106	50-150	0.423	30	
Bromochloromethane	21.5	0.50	ug/L	20	107	50-150	2.74	30	
Bromodichloromethane	21.0	0.20	ug/L	20	105	75-125	2.65	30	
Bromoform	21.5	0.50	ug/L	20	107	75-125	2.44	30	
Bromomethane	21.8	0.50	ug/L	20	109	75-125	3.75	30	
2-Butanone (MEK)	22.1	2.0	ug/L	20	111	50-150	3.03	30	

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

LCS Dup (B9D0213-BSD1) Continued

Prepared & Analyzed: 04/02/19

tert-Butylbenzene	22.0	0.20	ug/L	20	110	50-150	1.51	30	
n-Butylbenzene	21.6	0.20	ug/L	20	108	50-150	2.96	30	
sec-Butylbenzene	21.3	0.20	ug/L	20	106	50-150	1.42	30	
Carbon Disulfide	24.6	0.30	ug/L	20	123	50-150	1.89	30	
Carbon Tetrachloride	21.1	0.30	ug/L	20	105	75-125	0.284	30	
Chlorobenzene	20.9	0.30	ug/L	20	105	75-125	1.30	30	
Chloroethane	24.2	0.50	ug/L	20	121	75-125	2.72	30	
Chloroform	18.4	0.30	ug/L	20	92.2	75-125	1.67	30	
Chloromethane	18.2	0.40	ug/L	20	90.8	65-125	10.6	30	
4-Chlorotoluene	21.2	0.20	ug/L	20	106	65-125	0.947	30	
2-Chlorotoluene	21.4	0.30	ug/L	20	107	65-125	1.94	30	
1,2-Dibromo-3-chloropropane	21.1	0.40	ug/L	20	106	65-125	0.665	30	
Dibromochloromethane	20.8	0.30	ug/L	20	104	75-125	2.58	30	
1,2-Dibromoethane (EDB)	21.7	0.30	ug/L	20	108	65-125	2.33	30	
Dibromomethane	18.9	0.40	ug/L	20	94.6	65-125	1.94	30	
1,3-Dichlorobenzene	20.9	0.10	ug/L	20	105	65-125	1.69	30	
1,4-Dichlorobenzene	21.7	0.30	ug/L	20	109	75-125	3.56	30	
1,2-Dichlorobenzene	22.0	0.30	ug/L	20	110	65-125	2.44	30	
Dichlorodifluoromethane (R12)	14.3	0.50	ug/L	20	71.4	50-150	3.24	30	
1,1-Dichloroethane	19.9	0.20	ug/L	20	99.4	70-125	4.58	30	
1,2-Dichloroethane (EDC)	18.7	0.30	ug/L	20	93.4	75-125	1.07	30	
cis-1,2-Dichloroethylene	20.8	0.20	ug/L	20	104	75-125	4.81	30	
1,1-Dichloroethylene	22.9	0.30	ug/L	20	115	70-130	0.701	30	
trans-1,2-Dichloroethylene	20.8	0.40	ug/L	20	104	75-125	2.69	30	
1,3-Dichloropropene	20.3	0.10	ug/L	20	102	65-125	2.94	30	
1,2-Dichloropropane	21.4	0.50	ug/L	20	107	75-130	4.29	30	
2,2-Dichloropropane	17.9	0.40	ug/L	20	89.6	65-125	4.95	30	
trans-1,3-Dichloropropylene	20.3	0.20	ug/L	20	101	65-125	0.836	30	
1,1-Dichloropropylene	21.4	0.20	ug/L	20	107	65-125	1.79	30	
cis-1,3-Dichloropropylene	21.1	0.20	ug/L	20	106	75-125	2.98	30	
Ethylbenzene	21.2	0.20	ug/L	20	106	75-125	1.57	30	
Hexachlorobutadiene	22.8	0.40	ug/L	20	114	65-125	1.95	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Prepared & Analyzed: 04/02/19	RPD	RPD Limit	Notes
VOCs by GC/MS - Quality Control										
<i>Batch B9D0213 - EPA 5030B</i>										
LCS Dup (B9D0213-BSD1) Continued										
2-Hexanone (MBK)	21.1	2.0	ug/L	20	105	65-125	2.89	30		
Isopropylbenzene	22.0	0.20	ug/L	20	110	65-125	1.83	30		
4-Isopropyltoluene	21.4	0.20	ug/L	20	107	65-125	0.985	30		
Methyl-tert-Butyl Ether (MTBE)	46.4	1.7	ug/L	40	116	75-125	3.29	30		
Methylene Chloride	20.5	5.0	ug/L	20	102	75-130	6.30	30		
4-Methyl-2-pentanone (MIBK)	21.6	0.70	ug/L	20	108	65-125	6.56	30		
Naphthalene	21.6	0.20	ug/L	20	108	65-125	0.696	30		
n-Propylbenzene	21.8	0.20	ug/L	20	109	65-125	1.15	30		
Styrene	21.4	0.20	ug/L	20	107	65-125	2.32	30		
1,1,1,2-Tetrachloroethane	21.1	0.40	ug/L	20	105	65-125	2.26	30		
1,1,2,2-Tetrachloroethane	22.0	0.30	ug/L	20	110	70-135	2.91	30		
Tetrachloroethylene (PCE)	21.0	0.50	ug/L	20	105	75-125	1.28	30		
Toluene	21.1	0.30	ug/L	20	105	75-125	3.48	30		
1,2,3-Trichlorobenzene	21.9	0.20	ug/L	20	109	65-125	0.873	30		
1,1,2-Trichloroethane	21.2	0.30	ug/L	20	106	75-125	4.15	30		
1,1,1-Trichloroethane	21.0	0.30	ug/L	20	105	75-125	0.0476	30		
Trichloroethylene (TCE)	22.2	0.20	ug/L	20	111	75-125	0.769	30		
Trichlorofluoromethane (R11)	22.0	0.20	ug/L	20	110	65-125	27.2	30		
1,2,3-Trichloropropane	21.5	0.30	ug/L	20	108	65-125	1.54	30		
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	20.5	0.30	ug/L	20	103	65-125	2.27	30		
1,2,4-Trimethylbenzene	22.0	0.30	ug/L	20	110	65-125	2.16	30		
1,3,5-Trimethylbenzene	22.0	0.20	ug/L	20	110	65-125	1.79	30		
Vinyl chloride	17.3	0.50	ug/L	20	86.3	75-125	3.64	30		
o-Xylene	21.7	0.30	ug/L	20	108	75-125	1.86	30		
m,p-Xylenes	43.6	0.40	ug/L	40	109	65-125	1.34	30		
Surrogate: 4-Bromofluorobenzene	53.5	ug/L	50	107	70-140					
Surrogate: Dibromofluoromethane	49.0	ug/L	50	97.9	70-140					
Surrogate: Toluene-d8	51.8	ug/L	50	104	70-140					
Matrix Spike (B9D0213-MS1)					Source: 9C22002-17 Prepared & Analyzed: 04/02/19					
Acetone	24.0	2.0	ug/L	20	16.2	38.8	50-150			***

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Matrix Spike (B9D0213-MS1) Continued Source: 9C22002-17 Prepared & Analyzed: 04/02/19

Benzene	19.5	0.20	ug/L	20	97.6	70-130			
Bromobenzene	20.4	0.30	ug/L	20	102	50-150			
Bromoform	21.2	0.50	ug/L	20	106	50-150			
Bromochloromethane	20.0	0.20	ug/L	20	100	50-150			
Bromodichloromethane	23.9	0.50	ug/L	20	120	70-130			
Bromomethane	22.7	0.50	ug/L	20	114	50-150			
2-Butanone (MEK)	23.8	2.0	ug/L	20	119	50-150			
tert-Butylbenzene	20.7	0.20	ug/L	20	104	50-150			
n-Butylbenzene	20.0	0.20	ug/L	20	100	50-150			
sec-Butylbenzene	20.1	0.20	ug/L	20	100	50-150			
Carbon Disulfide	22.6	0.30	ug/L	20	113	50-150			
Carbon Tetrachloride	20.6	0.30	ug/L	20	103	50-150			
Chlorobenzene	20.6	0.30	ug/L	20	103	70-130			
Chloroethane	20.9	0.50	ug/L	20	104	50-150			
Chloroform	17.3	0.30	ug/L	20	86.4	70-130			
Chloromethane	19.5	0.40	ug/L	20	97.5	50-150			
4-Chlorotoluene	20.1	0.20	ug/L	20	101	50-150			
2-Chlorotoluene	19.8	0.30	ug/L	20	99.2	50-150			
1,2-Dibromo-3-chloropropane	21.0	0.40	ug/L	20	105	50-150			
Dibromochloromethane	21.2	0.30	ug/L	20	106	50-150			
1,2-Dibromoethane (EDB)	22.2	0.30	ug/L	20	111	50-150			
Dibromomethane	18.5	0.40	ug/L	20	92.7	50-150			
1,3-Dichlorobenzene	20.4	0.10	ug/L	20	102	50-150			
1,4-Dichlorobenzene	20.6	0.30	ug/L	20	103	50-150			
1,2-Dichlorobenzene	21.2	0.30	ug/L	20	106	50-150			
Dichlorodifluoromethane (R12)	14.3	0.50	ug/L	20	71.3	50-150			
1,1-Dichloroethane	18.2	0.20	ug/L	20	90.8	70-130			
1,2-Dichloroethane (EDC)	17.3	0.30	ug/L	20	86.3	50-150			
cis-1,2-Dichloroethylene	18.3	0.20	ug/L	20	91.4	70-130			
1,1-Dichloroethylene	20.6	0.30	ug/L	20	103	70-130			
trans-1,2-Dichloroethylene	18.4	0.40	ug/L	20	92.2	50-150			
1,3-Dichloropropane	21.0	0.10	ug/L	20	105	50-150			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Matrix Spike (B9D0213-MS1) Continued Source: 9C22002-17 Prepared & Analyzed: 04/02/19

1,2-Dichloropropane	19.6	0.50	ug/L	20	98.2	70-130			
2,2-Dichloropropane	14.8	0.40	ug/L	20	74.2	50-150			
trans-1,3-Dichloropropylene	20.6	0.20	ug/L	20	103	50-150			
cis-1,3-Dichloropropylene	20.2	0.20	ug/L	20	101	50-150			
Ethylbenzene	19.5	0.20	ug/L	20	97.4	50-150			
Hexachlorobutadiene	20.9	0.20	ug/L	20	105	70-130			
2-Hexanone (MBK)	20.5	0.40	ug/L	20	102	50-150			
Isopropylbenzene	22.5	2.0	ug/L	20	113	50-150			
4-Isopropyltoluene	19.9	0.20	ug/L	20	103	50-150			
Methyl-tert-Butyl Ether (MTBE)	46.8	1.7	ug/L	40	99.4	50-150			
Methylene Chloride	17.8	5.0	ug/L	20	117	70-130			
4-Methyl-2-pentanone (MIBK)	22.9	0.70	ug/L	20	88.8	50-150			
Naphthalene	20.4	0.20	ug/L	20	115	50-150			
n-Propylbenzene	20.5	0.20	ug/L	20	102	50-150			
Styrene	20.9	0.20	ug/L	20	105	50-150			
1,1,1,2-Tetrachloroethane	20.8	0.40	ug/L	20	104	50-150			
1,1,2,2-Tetrachloroethane	23.2	0.30	ug/L	20	116	50-150			
Tetrachloroethylene (PCE)	21.2	0.50	ug/L	20	106	70-130			
Toluene	20.1	0.30	ug/L	20	100	70-130			
1,2,3-Trichlorobenzene	19.8	0.20	ug/L	20	98.9	50-150			
1,1,2-Trichloroethane	20.8	0.30	ug/L	20	104	50-150			
1,1,1-Trichloroethane	20.2	0.30	ug/L	20	101	70-130			
Trichloroethylene (TCE)	20.9	0.20	ug/L	20	104	70-130			
Trichlorofluoromethane (R11)	21.7	0.20	ug/L	20	108	50-150			
1,2,3-Trichloropropene	22.4	0.30	ug/L	20	112	50-150			
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	18.6	0.30	ug/L	20	92.8	50-150			
1,2,4-Trimethylbenzene	20.3	0.30	ug/L	20	102	50-150			
1,3,5-Trimethylbenzene	20.4	0.20	ug/L	20	102	70-130			
Vinyl chloride	18.6	0.50	ug/L	20	92.9	70-130			
o-Xylene	21.4	0.30	ug/L	20	107	50-150			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Matrix Spike (B9D0213-MS1) Continued Source: 9C22002-17 Prepared & Analyzed: 04/02/19

m,p-Xylenes	42.5	0.40	ug/L	40	106	50-150			
Matrix Spike Dup (B9D0213-MSD1) Source: 9C22002-17 Prepared & Analyzed: 04/02/19									
Acetone	42.0	2.0	ug/L	20	16.2	129	50-150	54.6	30 AA-C1
Benzene	20.6	0.20	ug/L	20	103	70-130	5.24	30	
Bromobenzene	20.9	0.30	ug/L	20	104	50-150	2.52	30	
Bromochloromethane	20.4	0.50	ug/L	20	102	50-150	3.56	30	
Bromodichloromethane	20.2	0.20	ug/L	20	101	50-150	0.944	30	
Bromoform	21.6	0.50	ug/L	20	108	70-130	10.0	30	
Bromomethane	16.1	0.50	ug/L	20	80.6	50-150	34.0	30	
2-Butanone (MEK)	24.9	2.0	ug/L	20	125	50-150	4.68	30	
tert-Butylbenzene	21.0	0.20	ug/L	20	105	50-150	1.58	30	
n-Butylbenzene	20.8	0.20	ug/L	20	104	50-150	3.82	30	
sec-Butylbenzene	20.2	0.20	ug/L	20	101	50-150	0.596	30	
Carbon Disulfide	24.4	0.30	ug/L	20	122	50-150	8.00	30	
Carbon Tetrachloride	20.0	0.30	ug/L	20	100	50-150	2.90	30	
Chlorobenzene	20.2	0.30	ug/L	20	101	70-130	1.67	30	
Chloroethane	21.7	0.50	ug/L	20	109	50-150	3.89	30	
Chloroform	17.2	0.30	ug/L	20	86.0	70-130	0.464	30	
Chloromethane	20.9	0.40	ug/L	20	104	50-150	6.84	30	
4-Chlorotoluene	20.8	0.20	ug/L	20	104	50-150	3.18	30	
2-Chlorotoluene	20.6	0.30	ug/L	20	103	50-150	3.95	30	
1,2-Dibromo-3-chloropropane	21.7	0.40	ug/L	20	108	50-150	3.28	30	
Dibromochloromethane	20.1	0.30	ug/L	20	101	50-150	5.47	30	
1,2-Dibromoethane (EDB)	20.8	0.30	ug/L	20	104	50-150	6.38	30	
Dibromomethane	18.1	0.40	ug/L	20	90.6	50-150	2.24	30	
1,3-Dichlorobenzene	20.4	0.10	ug/L	20	102	50-150	0.392	30	
1,4-Dichlorobenzene	20.9	0.30	ug/L	20	104	50-150	1.59	30	
1,2-Dichlorobenzene	21.4	0.30	ug/L	20	107	50-150	0.844	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Matrix Spike Dup (B9D0213-MSD1)

Continued

Dichlorodifluoromethane (R12)	12.9	0.50	ug/L	20	64.6	50-150	9.78	30	
1,1-Dichloroethane	18.6	0.20	ug/L	20	93.2	70-130	2.61	30	
1,2-Dichloroethane (EDC)	17.2	0.30	ug/L	20	86.0	50-150	0.406	30	
cis-1,2-Dichloroethylene	19.4	0.20	ug/L	20	97.2	70-130	6.20	30	
1,1-Dichloroethylene	22.7	0.30	ug/L	20	114	70-130	9.64	30	
trans-1,2-Dichloroethylene	19.7	0.40	ug/L	20	98.4	50-150	6.40	30	
1,3-Dichloropropane	20.7	0.10	ug/L	20	103	50-150	1.58	30	
1,2-Dichloropropane	20.8	0.50	ug/L	20	104	70-130	5.74	30	
2,2-Dichloropropane	14.6	0.40	ug/L	20	72.8	50-150	2.04	30	
trans-1,3-Dichloropropylene	19.7	0.20	ug/L	20	98.6	50-150	4.46	30	
1,1-Dichloropropylene	20.3	0.20	ug/L	20	102	50-150	0.345	30	
cis-1,3-Dichloropropylene	20.1	0.20	ug/L	20	100	50-150	2.93	30	
Ethylbenzene	20.3	0.20	ug/L	20	102	70-130	2.96	30	
Hexachlorobutadiene	21.9	0.40	ug/L	20	110	50-150	6.69	30	
2-Hexanone (MVK)	22.3	2.0	ug/L	20	111	50-150	1.16	30	
Isopropylbenzene	21.3	0.20	ug/L	20	106	50-150	3.24	30	
4-Isopropyltoluene	20.7	0.20	ug/L	20	103	50-150	3.85	30	
Methyl-tert-Butyl Ether (MTBE)	47.2	1.7	ug/L	40	118	70-130	1.00	30	
Methylene Chloride	18.6	5.0	ug/L	20	92.8	50-150	4.52	30	
4-Methyl-2-pentanone (MIBK)	21.7	0.70	ug/L	20	108	50-150	5.74	30	
Naphthalene	22.6	0.20	ug/L	20	113	50-150	10.2	30	
n-Propylbenzene	21.2	0.20	ug/L	20	106	70-130	3.45	30	
Styrene	20.1	0.20	ug/L	20	101	50-150	4.04	30	
1,1,1,2-Tetrachloroethane	19.8	0.40	ug/L	20	99.2	50-150	5.01	30	
1,1,2,2-Tetrachloroethane	22.0	0.30	ug/L	20	110	50-150	4.91	30	
Tetrachloroethylene (PCE)	20.2	0.50	ug/L	20	101	70-130	5.12	30	
Toluene	19.7	0.30	ug/L	20	98.6	70-130	1.66	30	
1,2,3-Trichlorobenzene	21.8	0.20	ug/L	20	109	50-150	9.58	30	
1,1,2-Trichloroethane	20.6	0.30	ug/L	20	103	50-150	0.580	30	
1,1,1-Trichloroethane	19.7	0.30	ug/L	20	98.7	70-130	2.11	30	
Trichloroethylene (TCE)	21.2	0.20	ug/L	20	106	70-130	1.38	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9D0213 - EPA 5030B

Matrix Spike Dup (B9D0213-MSD1)

Continued

Trichlorofluoromethane (R11)	20.7	0.20	ug/L	20	103	50-150	4.77	30	
1,2,3-Trichloropropane	21.3	0.30	ug/L	20	107	50-150	5.17	30	
(R113)	19.2	0.30	ug/L	20	96.0	50-150	3.28	30	
1,2,4-Trimethylbenzene	21.0	0.30	ug/L	20	105	50-150	3.34	30	
1,3,5-Trimethylbenzene	21.0	0.20	ug/L	20	105	70-130	3.05	30	
Vinyl chloride	18.5	0.50	ug/L	20	92.6	70-130	0.269	30	
o-Xylene	20.4	0.30	ug/L	20	102	50-150	4.92	30	
m,p-Xylenes	41.7	0.40	ug/L	40	104	50-150	1.85	30	
Surrogate: 4-Bromofluorobenzene	54.1		ug/L	50	108	70-140			
Surrogate: Dibromofluoromethane	48.1		ug/L	50	96.2	70-140			
Surrogate: Toluene-d8	51.8		ug/L	50	104	70-140			

Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874347
Date Received: 03/20/19
Date Reported: 04/04/19

Special Notes

- [1] = *** : Exceeds lower control limit.
- [2] = AA-C1 : Exceeds RPD limit.
- J : Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

BB

Viorel Vasile
Operations Manager

ATTACHMENT C

Industrial Wastewater Discharge Analytical Report



9765 Eton Avenue
Chatsworth
California 91311
Tel: (818) 998-5547
Fax: (818) 998-7258

April 05, 2019

Peter Bennett
Haley & Aldrich (Oakland)
1956 Webster St., Suite 450
Oakland, CA 94612

Re : Cooper Drum - WDR Samples / 130072-024

MB874348 / 9C20008

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 03/20/19 12:42 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report or require additional information please call me at American Analytics.

Sincerely,

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
<u>624</u>					
CD-IDWP-032019-0001	9C20008-01	Water	5	03/20/19 12:00	03/20/19 12:42
<u>625</u>					
CD-IDWP-032019-0001	9C20008-01	Water	5	03/20/19 12:00	03/20/19 12:42
<u>COD 410.4</u>					
CD-IDWP-032019-0001	9C20008-01	Water	5	03/20/19 12:00	03/20/19 12:42
<u>pH Measurement SM4500H+B</u>					
CD-IDWP-032019-0001	9C20008-01	Water	5	03/20/19 12:00	03/20/19 12:42
<u>Sulfide Dissolved SM4500-S=D</u>					
CD-IDWP-032019-0001	9C20008-01	Water	5	03/20/19 12:00	03/20/19 12:42
<u>TSS SM2540D</u>					
CD-IDWP-032019-0001	9C20008-01	Water	5	03/20/19 12:00	03/20/19 12:42

[Signature]
Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples
Method: EPA 625 Semivolatile Organics by GC/MS

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19
Units: ug/L

Date Sampled:	03/20/19	AA ID No:	9C20008-01
Date Prepared:	03/25/19	Client ID No:	CD-IDWP-03201
Date Analyzed:	03/26/19	Matrix:	Water
Dilution Factor:	1	MDL	MRL

625 (EPA 625)

3,3'-Dichlorobenzidine	<12	12	20
Acenaphthene	<3.0	3.0	5.0
Acenaphthylene	<3.0	3.0	5.0
Aniline	<10	10	10
Anthracene	<3.0	3.0	5.0
Azobenzene	<3.0	3.0	5.0
Benzidine	<17	17	20
Benzo(a)anthracene	<3.0	3.0	20
Benzo(a)pyrene	<4.0	4.0	5.0
Benzo(b)fluoranthene	<4.0	4.0	5.0
Benzo(g,h,i)perylene	<5.0	5.0	5.0
Benzoic acid	<5.0	5.0	5.0
Benzo(k)fluoranthene	<5.0	5.0	5.0
Benzyl alcohol	<7.0	7.0	10
4-Bromophenyl phenyl ether	<4.0	4.0	5.0
Butyl benzyl phthalate	<6.0	6.0	10
4-Chloroaniline	<6.0	6.0	10
4-Chloro-3-methylphenol	<8.0	8.0	10
Bis(2-chloroethoxy)methane	<7.0	7.0	20
Bis(2-chloroethyl)ether	<5.0	5.0	5.0
Bis(2-chloroisopropyl)ether	<5.0	5.0	5.0
2-Chloronaphthalene	<5.0	5.0	5.0
2-Chlorophenol	<5.0	5.0	5.0
4-Chlorophenyl phenyl ether	<3.0	3.0	5.0
Chrysene	<4.0	4.0	5.0
Dibenz(a,h)anthracene	<5.0	5.0	5.0

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples
Method: EPA 625 Semivolatile Organics by GC/MS

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19
Units: ug/L

Date Sampled:	03/20/19	AA ID No:	9C20008-01
Date Prepared:	03/25/19	Client ID No:	CD-IDWP-03201
Date Analyzed:	03/26/19	Matrix:	Water
Dilution Factor:	1	MDL	MRL

625 (EPA 625) (continued)

Dibenzofuran	<3.0	3.0	5.0
Di-n-butyl phthalate	<5.0	5.0	100
1,2-Dichlorobenzene	<2.0	2.0	5.0
1,3-Dichlorobenzene	<3.0	3.0	5.0
1,4-Dichlorobenzene	<3.0	3.0	5.0
2,4-Dichlorophenol	<5.0	5.0	5.0
Diethyl phthalate	<3.0	3.0	40
2,4-Dimethylphenol	<6.0	6.0	20
Dimethyl phthalate	<3.0	3.0	10
4,6-Dinitro-2-methylphenol	<17	17	20
2,4-Dinitrotoluene	<10	10	20
2,6-Dinitrotoluene	<3.0	3.0	5.0
2,4-Dinitrotoluene	<3.0	3.0	5.0
Di-n-octyl phthalate	<7.0	7.0	10
1,2-Diphenylhydrazine	<3.0	3.0	5.0
Bis(2-ethylhexyl)phthalate	<19	19	50
Fluoranthene	<4.0	4.0	5.0
Fluorene	<3.0	3.0	5.0
Hexachlorobenzene	<7.0	7.0	10
Hexachlorobutadiene	<8.0	8.0	10
Hexachlorocyclopentadiene	<6.0	6.0	10
Hexachloroethane	<3.0	3.0	5.0
Indeno (1,2,3-cd) pyrene	<5.0	5.0	20
Isophorone	<4.0	4.0	5.0
2-Methylnaphthalene	<5.0	5.0	5.0
2-Methylphenol	<4.0	4.0	10

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples
Method: EPA 625 Semivolatile Organics by GC/MS

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19
Units: ug/L

Date Sampled: 03/20/19
Date Prepared: 03/25/19
Date Analyzed: 03/26/19
AA ID No: 9C20008-01
Client ID No: CD-IDWP-03201

Matrix: Water

Dilution Factor: 1

MDL

MRL

625 (EPA 625) (continued)

3-Methylphenol	<4.0	4.0	10
4-Methylphenol	<4.0	4.0	10
Naphthalene	<4.0	4.0	5.0
4-Nitroaniline	<5.0	5.0	20
3-Nitroaniline	<10	10	20
2-Nitroaniline	<4.0	4.0	20
Nitrobenzene	<5.0	5.0	5.0
2-Nitropheno	<6.0	6.0	10
4-Nitropheno	<5.0	5.0	10
N-Nitrosodimethylamine	<3.0	3.0	5.0
N-Nitrosodiphenylamine	<4.0	4.0	5.0
N-Nitrosodi-n-propylamine	<6.0	6.0	10
Pentachloropheno	<6.5	6.5	20
Phenanthrene	<3.0	3.0	5.0
Phenol	<3.0	3.0	5.0
Pyrene	<3.0	3.0	5.0
1,2,4-Trichlorobenzene	<4.0	4.0	10
2,4,5-Trichloropheno	<6.0	6.0	10
2,4,6-Trichloropheno	<8.0	8.0	10

Surrogates

	%REC Limits
2-Fluorobiphenyl	43-116
2-Fluorophenol	21-100
Nitrobenzene-d5	35-134
Phenol-d6	10-94
Terphenyl-d4	33-141

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client:	Haley & Aldrich (Oakland)	AA Project No:	MB874348
Project No:	130072-024	Date Received:	03/20/19
Project Name:	Cooper Drum - WDR Samples	Date Reported:	04/05/19
Method:	EPA 625 Semivolatile Organics by GC/MS	Units:	ug/L
Date Sampled:	03/20/19		
Date Prepared:	03/25/19		
Date Analyzed:	03/26/19		
AA ID No:	9C20008-01		
Client ID No:	CD-IDWP-03201		
Matrix:	9-0001 Water		
Dilution Factor:	1	MDL	MRL

625 (EPA 625) (continued)

2,4,6-Tribromophenol

56%

10-123

[Signature]
Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples
Method: General Chemistry Analyses

AA I.D. No.	Client I.D. No.	Sampled	Prepared	Analyzed	Dilution	Result	Units	MDL	MRL
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COD 410.4 (EPA 410.4)

9C20008-01	CD-IDWP-032019-001	03/20/19	04/01/19	04/01/19	1	<7.0	mg/L	7	10
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pH Measurement SM4500H+ B (SM4500H+ B)

9C20008-01	CD-IDWP-032019-001	03/20/19	03/20/19	03/20/19	1	7.3	pH Units	0.01	0.01
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Sulfide Dissolved SM4500-S=D (SM4500-S=D)

9C20008-01	CD-IDWP-032019-001	03/20/19	03/27/19	03/27/19	1	<0.025	mg/L	0.025	0.05
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TSS SM2540D (SM2540D)

9C20008-01	CD-IDWP-032019-001	03/20/19	03/21/19	03/21/19	1	10	mg/L	5	10
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Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples
Method: VOCs by GC/MS EPA 624

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19
Units: ug/L

Date Sampled:	03/20/19	AA ID No:	9C20008-01
Date Prepared:	03/26/19	Client ID No:	CD-IDWP-03201
Matrix:	Water	Dilution Factor:	1
		MDL	MRL

624 (EPA 624)

Benzene	<0.20	0.20	0.50
Bromodichloromethane	<0.20	0.20	0.50
Bromoform	<0.50	0.50	0.50
Carbon Tetrachloride	<0.50	0.50	0.50
Chlorobenzene	<0.30	0.30	0.50
Chloroethane	<0.30	0.30	0.50
2-Chloroethyl Vinyl Ether	<6.0	6.0	10
Chloroform	<0.30	0.30	0.50
Chloromethane	<0.40	0.40	0.50
Dibromochloromethane	<0.30	0.30	0.50
1,2-Dichlorobenzene	<0.30	0.30	0.50
1,4-Dichlorobenzene	<0.30	0.30	0.50
1,3-Dichlorobenzene	<0.10	0.10	0.50
1,1-Dichloroethane	<0.20	0.20	0.50
1,2-Dichloroethane (EDC)	1.5	0.30	0.50
trans-1,2-Dichloroethylene	4.1	0.40	0.50
1,1-Dichloroethylene	<0.30	0.30	0.50
1,2-Dichloropropane	<0.50	0.50	0.50
cis-1,3-Dichloropropylene	<0.20	0.20	0.50
trans-1,3-Dichloropropylene	<0.20	0.20	0.50
Ethylbenzene	<0.20	0.20	0.50
Methylene Chloride	<5.0	5.0	5.0
1,1,2,2-Tetrachloroethane	<0.30	0.30	0.50
Tetrachloroethylene (PCE)	<0.50	0.50	0.50
Toluene	<0.30	0.30	0.50

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples
Method: VOCs by GC/MS EPA 624

Date Sampled:

03/20/19
03/26/19

Date Prepared:

03/26/19

Date Analyzed:

9C20008-01
CD-IDWP-03201

AA ID No:

Client ID No:

9-0001

Water

Matrix:

Dilution Factor:

1

MDL

MRL

624 (EPA 624) (continued)

1,1,2-Trichloroethane	<0.30	0.30	0.50
1,1,1-Trichloroethane	<0.30	0.30	0.50
Trichloroethylene (TCE)	0.59	0.20	0.50
Vinyl chloride	0.61	0.50	0.50

Surrogates

4-Bromofluorobenzene	104%	0.30	0.50
Dibromofluoromethane	105%	0.30	0.50
Toluene-d8	106%	0.20	0.50

%REC Limits

70-140	70-140	70-140
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Viorel Vasile
 Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Notes
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EPA 625 Semivolatile Organics by GC/MS - Quality Control

Batch B9C2522 - EPA 3510C_MS

Blank (B9C2522-BLK1)

Prepared: 03/25/19 Analyzed: 03/26/19

3,3'-Dichlorobenzidine	<12	12	ug/L						
Acenaphthene	<3.0	3.0	ug/L						
Acenaphthylene	<3.0	3.0	ug/L						
Aniline	<10	10	ug/L						
Anthracene	<3.0	3.0	ug/L						
Azobenzene	<3.0	3.0	ug/L						
Benzidine	<17	17	ug/L						
Benzo(a)anthracene	<3.0	3.0	ug/L						
Benzo(a)pyrene	<3.0	3.0	ug/L						
Benzo(b)fluoranthene	<4.0	4.0	ug/L						
Benzo(g,h,i)perylene	<5.0	5.0	ug/L						
Benzoic acid	<5.0	5.0	ug/L						
Benzo(k)fluoranthene	<5.0	5.0	ug/L						
Benzyl alcohol	<7.0	7.0	ug/L						
4-Bromophenyl phenyl ether	<4.0	4.0	ug/L						
Butyl benzyl phthalate	<6.0	6.0	ug/L						
4-Chloro-3-methylphenol	<8.0	8.0	ug/L						
4-Chloroaniline	<7.0	7.0	ug/L						
Bis(2-chloroethoxy)methane	<5.0	5.0	ug/L						
Bis(2-chloroethyl)ether	<4.0	4.0	ug/L						
Bis(2-chloroisopropyl)ether	<5.0	5.0	ug/L						
2-Chloronaphthalene	<5.0	5.0	ug/L						
2-Chlorophenol	<5.0	5.0	ug/L						
4-Chlorophenyl phenyl ether	<3.0	3.0	ug/L						
Chrysene	<4.0	4.0	ug/L						
Dibenz(a,h)anthracene	<5.0	5.0	ug/L						
Dibenzofuran	<3.0	3.0	ug/L						
Di-n-butyl phthalate	<5.0	5.0	ug/L						
1,2-Dichlorobenzene	<2.0	2.0	ug/L						
1,3-Dichlorobenzene	<3.0	3.0	ug/L						
1,4-Dichlorobenzene	<3.0	3.0	ug/L						
2,4-Dichloropheno	<5.0	5.0	ug/L						

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

EPA 625 Semivolatile Organics by GC/MS - Quality Control

Batch B9C2522 - EPA 3510C_MS

Blank (B9C2522-BLK1) Continued

Prepared: 03/25/19 Analyzed: 03/26/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
Diethyl phthalate	<3.0	3.0	ug/L							
2,4-Dimethylphenol	<6.0	6.0	ug/L							
Dimethyl phthalate	<3.0	3.0	ug/L							
4,6-Dinitro-2-methylphenol	<17	17	ug/L							
2,4-Dinitrophenol	<10	10	ug/L							
2,6-Dinitrotoluene	<3.0	3.0	ug/L							
2,4-Dinitrotoluene	<3.0	3.0	ug/L							
Di-n-octyl phthalate	<7.0	7.0	ug/L							
1,2-Diphenylhydrazine	<3.0	3.0	ug/L							
Bis(2-ethylhexyl)phthalate	<19	19	ug/L							
Fluoranthene	<4.0	4.0	ug/L							
Fluorene	<3.0	3.0	ug/L							
Hexachlorobenzene	<7.0	7.0	ug/L							
Hexachlorobutadiene	<8.0	8.0	ug/L							
Hexachlorocyclopentadiene	<6.0	6.0	ug/L							
Hexachloroethane	<3.0	3.0	ug/L							
Indeno (1,2,3-cd) pyrene	<5.0	5.0	ug/L							
Isophorone	<4.0	4.0	ug/L							
2-Methylnaphthalene	<5.0	5.0	ug/L							
2-Methylphenol	<4.0	4.0	ug/L							
3-Methylphenol	<4.0	4.0	ug/L							
4-Methylphenol	<4.0	4.0	ug/L							
Naphthalene	<4.0	4.0	ug/L							
4-Nitroaniline	<5.0	5.0	ug/L							
3-Nitroaniline	<10	10	ug/L							
2-Nitroaniline	<4.0	4.0	ug/L							
Nitrobenzene	<5.0	5.0	ug/L							
2-Nitrophenol	<6.0	6.0	ug/L							
4-Nitrophenol	<5.0	5.0	ug/L							
N-Nitrosodimethylamine	<3.0	3.0	ug/L							
N-Nitrosodiphenylamine	<4.0	4.0	ug/L							
N-Nitrosodi-n-propylamine	<6.0	6.0	ug/L							

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

EPA 625 Semivolatile Organics by GC/MS - Quality Control

Batch B9C2522 - EPA 3510C_MS

Blank (B9C2522-BLK1) Continued

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
Pentachlorophenol	<6.5	6.5	ug/L						
Phenanthrene	<3.0	3.0	ug/L						
Phenol	<3.0	3.0	ug/L						
Pyrene	<3.0	3.0	ug/L						
1,2,4-Trichlorobenzene	<4.0	4.0	ug/L						
2,4,5-Trichlorophenol	<6.0	6.0	ug/L						
2,4,6-Trichlorophenol	<8.0	8.0	ug/L						
Surrogate: 2-Fluorobiphenyl	17.1		ug/L	25		68.3	43-116		
Surrogate: 2-Fluorophenol	20.4		ug/L	50		40.7	21-100		
Surrogate: Nitrobenzene-d5	23.0		ug/L	25		92.0	35-134		
Surrogate: Phenol-d6	15.1		ug/L	50		30.2	10-94		
Surrogate: Terphenyl-d4	18.6		ug/L	25		74.6	33-141		
Surrogate: 2,4,6-Tribromophenol	24.4		ug/L	50		48.9	10-123		

LCS (B9C2522-B1)

Prepared: 03/25/19 Analyzed: 03/26/19

Acenaphthene	19.0	3.0	ug/L	30	63.3	50-121			
Anthracene	21.3	3.0	ug/L	30	71.0	41-121			
Benz(a)pyrene	19.6	3.0	ug/L	30	65.4	17-163			
Benzo(b)fluoranthene	20.7	4.0	ug/L	30	69.1	33-137			
Butyl benzyl phthalate	18.5	6.0	ug/L	30	61.6	19-139			
4-Chloro-3-methylphenol	16.9	8.0	ug/L	30	56.2	22-147			
Bis(2-chloroethyl)ether	23.5	4.0	ug/L	30	78.3	26-122			
2-Chloronaphthalene	21.2	5.0	ug/L	30	70.6	60-118			
4-Chlorophenyl phenyl ether	16.4	3.0	ug/L	30	54.8	41-128			
1,4-Dichlorobenzene	18.2	3.0	ug/L	30	60.6	26-105			
2,4-Dichlorophenol	9.92	5.0	ug/L	30	33.1	39-135			
Di-n-octyl phthalate	17.9	7.0	ug/L	30	59.8	4-146			
Fluoranthene	20.2	4.0	ug/L	30	67.4	47-125			
Fluorene	18.4	3.0	ug/L	30	61.2	60-120			
Hexachlorobenzene	20.8	7.0	ug/L	30	69.4	2-152			
Hexachlorobutadiene	13.4	8.0	ug/L	30	44.5	24-116			
Hexachloroethane	18.5	3.0	ug/L	30	61.5	40-113			

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

EPA 625 Semivolatile Organics by GC/MS - Quality Control

Batch B9C2522 - EPA 3510C_MS

LCS (B9C2522-B\$1) Continued

Prepared: 03/25/19 Analyzed: 03/26/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
Surrogate: Nitrobenzene-d5									
Prepared: 03/25/19 Analyzed: 03/26/19									
Isophorone	20.3	4.0	ug/L	30	67.7	21-196			
Naphthalene	19.2	4.0	ug/L	30	63.9	25-121			
Nitrobenzene	22.0	5.0	ug/L	30	73.2	38-133			
2-Nitrophenol	7.88	6.0	ug/L	30	26.3	2-163			
N-Nitrosodi-n-propylamine	25.3	6.0	ug/L	30	84.3	2-230			
Pentachlorophenol	6.50	6.5	ug/L	30	21.7	14-176			J
Phenol	9.24	3.0	ug/L	30	30.8	5-112			
Pyrene	21.7	3.0	ug/L	30	72.3	52-115			
1,2,4-Trichlorobenzene	16.1	4.0	ug/L	30	53.8	44-142			
2,4,6-Trichlorophenol	8.33	8.0	ug/L	30	27.8	37-144			***, J
Surrogate: 2-Fluorobiphenyl	21.5		ug/L	25	85.8	43-116			
Surrogate: 2-Fluorophenol	15.4		ug/L	50	30.9	21-100			
Surrogate: Phenol-d6	25.0		ug/L	25	100	35-134			
Surrogate: Terphenyl-d4	15.6		ug/L	50	31.1	10-94			
Surrogate: Tribromophenol	24.0		ug/L	25	96.2	33-141			
LCS Dup (B9C2522-B\$D1)	19.3		ug/L	50	38.5	10-123			
Acenaphthene	22.3	3.0	ug/L	30	74.5	50-121	16.3	30	
Anthracene	25.2	3.0	ug/L	30	83.9	41-121	16.6	30	
Benzo(a)pyrene	23.6	3.0	ug/L	30	78.8	17-163	18.6	30	
Benzo(b)fluoranthene	25.0	4.0	ug/L	30	83.4	33-137	18.8	30	
Butyl benzyl phthalate	23.8	6.0	ug/L	30	79.4	19-139	25.3	30	
4-Chloro-3-methylphenol	21.8	8.0	ug/L	30	72.8	22-147	25.7	30	
Bis(2-chloroethyl)ether	27.4	4.0	ug/L	30	91.4	26-122	15.4	30	
2-Chloronaphthalene	22.7	5.0	ug/L	30	75.7	60-118	6.88	30	
4-Chlorophenyl phenyl ether	20.2	3.0	ug/L	30	67.5	41-128	20.7	30	
1,4-Dichlorobenzene	21.2	3.0	ug/L	30	70.7	26-105	15.4	30	
2,4-Dichlorophenol	14.6	5.0	ug/L	30	48.8	39-135	38.4	30	AA-C1
Di-n-octyl phthalate	25.6	7.0	ug/L	30	85.4	4-146	35.3	30	AA-C1
Fluoranthene	24.4	4.0	ug/L	30	81.5	47-125	18.9	30	
Fluorene	21.8	3.0	ug/L	30	72.8	60-120	17.3	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

EPA 625 Semivolatile Organics by GC/MS - Quality Control

Batch B9C2522 - EPA 3510C_MS

LCS Dup (B9C2522-BSD1) Continued

Prepared: 03/25/19 Analyzed: 03/26/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
Hexachlorobenzene	24.7	7.0	ug/L	30	82.4	2-152	17.2	30		
Hexachlorobutadiene	15.1	8.0	ug/L	30	50.4	24-116	12.4	30		
Hexachloroethane	23.2	3.0	ug/L	30	77.3	40-113	22.7	30		
Isophorone	22.9	4.0	ug/L	30	76.2	21-196	11.9	30		
Naphthalene	21.2	4.0	ug/L	30	70.7	25-121	10.1	30		
Nitrobenzene	25.8	5.0	ug/L	30	86.1	38-133	16.2	30		
2-Nitrophenol	13.1	6.0	ug/L	30	43.8	2-163	50.0	30		AA-C1
N-Nitrosodi-n-propylamine	32.4	6.0	ug/L	30	108	2-230	24.7	30		
Pentachlorophenol	6.93	6.5	ug/L	30	23.1	14-176	6.40	30		J
Phenol	12.1	3.0	ug/L	30	40.5	5-112	27.1	30		
Pyrene	24.3	3.0	ug/L	30	81.0	52-115	11.4	30		
1,2,4-Trichlorobenzene	17.3	4.0	ug/L	30	57.6	44-142	6.88	30		
2,4,6-Trichlorophenol	13.9	8.0	ug/L	30	46.3	37-144	50.1	30		AA-C1
Surrogate: 2-Fluorobiphenyl	21.0		ug/L	25	84.0	43-116				
Surrogate: 2-Fluorophenol	25.7		ug/L	50	51.3	21-100				
Surrogate: Nitrobenzene-d5	27.2		ug/L	25	109	35-134				
Surrogate: Phenol-d6	21.4		ug/L	50	42.8	10-94				
Surrogate: Terphenyl-d14	25.6		ug/L	25	102	33-141				
Surrogate: 2,4,6-Tribromophenol	32.8		ug/L	50	65.6	10-123				

General Chemistry Analyses - Quality Control

Batch B9C2530 - NO PREP

Blank (B9C2530-BLK1)

Prepared & Analyzed: 03/21/19

Total Suspended Solids

<5.0 5.0 mg/L

Prepared & Analyzed: 03/21/19

LCS (B9C2530-BS1)

45.5 5.0 mg/L 50

91.0 80-120 Prepared & Analyzed: 03/21/19

LCS Dup (B9C2530-BSD1)

46.0 5.0 mg/L 50

92.0 80-120 Prepared & Analyzed: 03/21/19

Total Suspended Solids

55.0 5.0 mg/L

53.6 2.58 20 Prepared & Analyzed: 03/21/19

Duplicate (B9C2530-DUP1)

55.0 5.0 mg/L

53.6 2.58 20 Prepared & Analyzed: 03/21/19

Total Suspended Solids

Batch B9C2721 - NO PREP

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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General Chemistry Analyses - Quality Control

Batch B9C2721 - NO PREP

Blank (B9C2721-BLK1)

Sulfide <0.025 0.025 mg/L Prepared & Analyzed: 03/27/19

LCS (B9C2721-BS1)

Sulfide **0.477** 0.025 mg/L Prepared & Analyzed: 03/27/19

LCS Dup (B9C2721-BSD1)

Sulfide **0.498** 0.025 mg/L 0.50 95.4 70-130 4.31 20

Duplicate (B9C2721-DUP1)

Sulfide <0.025 0.025 mg/L Prepared & Analyzed: 03/27/19

Matrix Spike (B9C2721-MS1)

Sulfide **0.544** 0.025 mg/L 0.50 <0.050 109 70-130 20

Matrix Spike Dup (B9C2721-MSD1)

Sulfide **0.548** 0.025 mg/L 0.50 <0.050 110 70-130 0.733 20

Batch B9D0119 - NO PREP

Blank (B9D0119-BLK1)

Chemical Oxygen Demand <7.0 7.0 mg/L Prepared & Analyzed: 04/01/19

LCS (B9D0119-BS1)

Chemical Oxygen Demand **58.8** 7.0 mg/L 50 118 80-120 Prepared & Analyzed: 04/01/19

LCS Dup (B9D0119-BSD1)

Chemical Oxygen Demand **58.8** 7.0 mg/L 50 118 80-120 0.00 20

Duplicate (B9D0119-DUP1)

Chemical Oxygen Demand <7.0 7.0 mg/L <10 Prepared & Analyzed: 04/01/19

VOCs by GC/MS EPA 624 - Quality Control

Batch B9C2621 - EPA 5030B

Blank (B9C2621-BLK1)

Benzene <0.20 0.20 ug/L Prepared & Analyzed: 03/26/19

Bromodichloromethane

Bromoform <0.20 0.20 ug/L

Bromomethane

Carbon Tetrachloride <0.50 0.50 ug/L

Chlorobenzene

Chloroethane <0.30 0.30 ug/L

Signature

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result %REC	%REC Limits	RPD	RPD Limit	Notes
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VOCs by GC/MS EPA 624 - Quality Control

Batch B9C2621 - EPA 5030B

Blank (B9C2621-BLK1) Continued

Prepared & Analyzed: 03/26/19

2-Chloroethyl Vinyl Ether	<6.0	6.0	ug/L						
Chloroform	<0.30	0.30	ug/L						
Chloromethane	<0.40	0.40	ug/L						
Dibromochloromethane	<0.30	0.30	ug/L						
1,2-Dichlorobenzene	<0.30	0.30	ug/L						
1,4-Dichlorobenzene	<0.30	0.30	ug/L						
1,3-Dichlorobenzene	<0.10	0.10	ug/L						
1,1-Dichloroethane	<0.20	0.20	ug/L						
1,2-Dichloroethane (EDC)	<0.30	0.30	ug/L						
trans-1,2-Dichloroethylene	<0.40	0.40	ug/L						
1,1-Dichloroethylene	<0.30	0.30	ug/L						
1,2-Dichloropropane	<0.50	0.50	ug/L						
cis-1,3-Dichloropropylene	<0.20	0.20	ug/L						
trans-1,3-Dichloropropylene	<0.20	0.20	ug/L						
Ethylbenzene	<0.20	0.20	ug/L						
Methylene Chloride	<5.0	5.0	ug/L						
1,1,2,2-Tetrachloroethane	<0.30	0.30	ug/L						
Tetrachloroethylene (PCE)	<0.50	0.50	ug/L						
Toluene	<0.30	0.30	ug/L						
1,1,2-Trichloroethane	<0.30	0.30	ug/L						
1,1,1-Trichloroethane	<0.30	0.30	ug/L						
Trichloroethylene (TCE)	<0.20	0.20	ug/L						
Vinyl chloride	<0.50	0.50	ug/L						
<i>Surrogate: 4-Bromofluorobenzene</i>	52.1		ug/L	50	104	70-140			
<i>Surrogate: Dibromofluoromethane</i>	53.2		ug/L	50	106	70-140			
<i>Surrogate: Toluene-d8</i>	52.9		ug/L	50	106	70-140			
LCS (B9C2621-BS1)									
Benzene	19.9	0.20	ug/L	20	99.5	75-125			
Bromodichloromethane	20.7	0.20	ug/L	20	104	75-125			
Bromoform	21.2	0.50	ug/L	20	106	75-125			
Bromomethane	16.1	0.50	ug/L	20	80.6	75-125			

Prepared & Analyzed: 03/26/19

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result %REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GC/MS EPA 624 - Quality Control									
Batch B9C2621 - EPA 5030B									
LCS (B9C2621-BSD1) Continued									
									Prepared & Analyzed: 03/26/19
Carbon Tetrachloride	20.6	0.30	ug/L	20	103	75-125			
Chlorobenzene	20.8	0.30	ug/L	20	104	75-125			
Chloroethane	19.8	0.50	ug/L	20	99.1	75-125			
2-Chloroethyl Vinyl Ether	19.3	6.0	ug/L	20	96.5	70-130			
Chloroform	20.2	0.30	ug/L	20	101	75-125			
Chloromethane	19.9	0.40	ug/L	20	99.4	65-125			
Dibromochloromethane	20.3	0.30	ug/L	20	102	75-125			
1,2-Dichlorobenzene	20.5	0.30	ug/L	20	103	70-130			
1,4-Dichlorobenzene	20.5	0.30	ug/L	20	103	75-125			
1,3-Dichlorobenzene	20.5	0.10	ug/L	20	102	70-130			
1,1-Dichloroethane	19.0	0.20	ug/L	20	95.2	70-125			
1,2-Dichloroethane (EDC)	20.0	0.30	ug/L	20	100	75-125			
trans-1,2-Dichloroethylene	20.7	0.40	ug/L	20	103	75-125			
1,1-Dichloroethylene	19.1	0.30	ug/L	20	95.4	70-130			
1,2-Dichloropropane	20.7	0.50	ug/L	20	103	75-130			
cis-1,3-Dichloropropylene	20.3	0.20	ug/L	20	102	75-125			
trans-1,3-Dichloropropylene	20.8	0.20	ug/L	20	104	70-130			
Ethylbenzene	21.2	0.20	ug/L	20	106	75-125			
Methylene Chloride	19.6	5.0	ug/L	20	97.8	75-130			
1,1,2,2-Tetrachloroethane	20.8	0.30	ug/L	20	104	70-135			
Tetrachloroethylene (PCE)	21.6	0.50	ug/L	20	108	75-125			
Toluene	20.2	0.30	ug/L	20	101	75-125			
1,1,2-Trichloroethane	19.8	0.30	ug/L	20	99.2	75-125			
1,1,1-Trichloroethane	20.5	0.30	ug/L	20	102	75-125			
Trichloroethylene (TCE)	21.0	0.20	ug/L	20	105	75-125			
Vinyl chloride	18.3	0.50	ug/L	20	91.6	75-125			
Surrogate: 4-Bromofluorobenzene	52.2		ug/L	50	104	70-140			
Surrogate: Dibromofluoromethane	51.3		ug/L	50	103	70-140			
Surrogate: Toluene-d8	52.5		ug/L	50	105	70-140			
LCS Dup (B9C2621-BSD1)					Prepared: 03/26/19 Analyzed: 03/27/19				
Benzene	21.5	0.20	ug/L	20	108	75-125	7.92	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
VOCs by GC/MS EPA 624 - Quality Control									
Batch B9C2621 - EPA 5030B									
LCS Dup (B9C2621-BSD1) Continued									
Bromodichloromethane	19.6	0.20	ug/L	20	98.0	75-125	5.65	30	
Bromoform	19.6	0.50	ug/L	20	98.2	75-125	7.69	30	
Bromomethane	18.4	0.50	ug/L	20	91.8	75-125	13.1	30	
Carbon Tetrachloride	19.9	0.30	ug/L	20	99.4	75-125	3.85	30	
Chlorobenzene	20.8	0.30	ug/L	20	104	75-125	0.0961	30	
Chloroethane	19.8	0.50	ug/L	20	99.0	75-125	0.151	30	
2-Chloroethyl Vinyl Ether	18.7	6.0	ug/L	20	93.7	70-130	2.94	30	
Chloroform	20.3	0.30	ug/L	20	101	75-125	0.395	30	
Chloromethane	17.5	0.40	ug/L	20	87.7	65-125	12.5	30	
Dibromochloromethane	19.6	0.30	ug/L	20	97.8	75-125	3.86	30	
1,2-Dichlorobenzene	20.6	0.30	ug/L	20	103	70-130	0.632	30	
1,4-Dichlorobenzene	20.2	0.30	ug/L	20	101	75-125	1.62	30	
1,3-Dichlorobenzene	20.3	0.10	ug/L	20	102	70-130	0.637	30	
1,1-Dichloroethane	18.7	0.20	ug/L	20	93.6	70-125	1.75	30	
1,2-Dichloroethane (EDC)	18.2	0.30	ug/L	20	90.8	75-125	9.79	30	
trans-1,2-Dichloroethylene	21.6	0.40	ug/L	20	108	75-125	4.12	30	
1,1-Dichloroethylene	21.0	0.30	ug/L	20	105	70-130	9.49	30	
cis-1,3-Dichloropropylene	22.1	0.50	ug/L	20	110	75-130	6.69	30	
trans-1,3-Dichloropropylene	18.8	0.20	ug/L	20	94.0	70-130	10.2	30	
Ethylbenzene	21.0	0.20	ug/L	20	105	75-125	0.948	30	
Methylene Chloride	20.3	5.0	ug/L	20	101	75-130	3.71	30	
1,1,2,2-Tetrachloroethane	19.5	0.30	ug/L	20	97.3	70-135	6.61	30	
Tetrachloroethylene (PCE)	20.4	0.50	ug/L	20	102	75-125	5.68	30	
Toluene	20.7	0.30	ug/L	20	104	75-125	2.44	30	
1,1,2-Trichloroethane	20.6	0.30	ug/L	20	103	75-125	3.52	30	
1,1,1-Trichloroethane	19.8	0.30	ug/L	20	99.0	75-125	3.38	30	
Trichloroethylene (TCE)	21.5	0.20	ug/L	20	107	75-125	2.54	30	
Vinyl chloride	18.3	0.50	ug/L	20	91.6	75-125	0.00	30	
Surrogate: 4-Bromofluorobenzene	53.8	50	ug/L	103	108	70-140			
Surrogate: Dibromofluoromethane	51.6	50	ug/L	103	70-140				

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Notes
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VOCs by GC/MS EPA 624 - Quality Control

Batch B9C2621 - EPA 5030B

LCS Dup (B9C2621-BSD1) Continued

Surrogate: Toluene-d8

Matrix Spike (B9C2621-MS1)

52.6

Source: 9C20009-15

Prepared: 03/26/19

Analyzed: 03/27/19

Benzene	20.1	0.20	ug/L	50	105	70-140				
Bromodichloromethane	19.8	0.20	ug/L	20	100	70-130	98.9	70-130		
Bromoform	19.1	0.50	ug/L	20	95.7	70-130	95.7	70-130		
Bromomethane	18.7	0.50	ug/L	20	93.7	70-130	93.7	70-130		
Carbon Tetrachloride	19.4	0.30	ug/L	20	96.9	70-130	96.9	70-130		
Chlorobenzene	20.4	0.30	ug/L	20	102	70-130	102	70-130		
Chloroethane	23.9	0.50	ug/L	20	119	70-130	119	70-130		
Chloroform	19.3	0.30	ug/L	20	96.6	70-130	96.6	70-130		
Chloromethane	17.4	0.40	ug/L	20	86.9	65-130	86.9	65-130		
Dibromochloromethane	19.2	0.30	ug/L	20	95.9	70-130	95.9	70-130		
1,2-Dichlorobenzene	20.0	0.30	ug/L	20	99.9	70-130	99.9	70-130		
1,3-Dichlorobenzene	19.9	0.30	ug/L	20	99.6	70-130	99.6	70-130		
1,4-Dichlorobenzene	19.7	0.10	ug/L	20	98.7	70-130	98.7	70-130		
1,1-Dichloroethane	18.0	0.20	ug/L	20	90.1	70-130	90.1	70-130		
1,2-Dichloroethane (EDC)	18.3	0.30	ug/L	20	91.5	70-130	91.5	70-130		
trans-1,2-Dichloroethylene	19.9	0.40	ug/L	20	99.3	70-130	99.3	70-130		
1,1-Dichloroethylene	18.9	0.30	ug/L	20	94.4	70-130	94.4	70-130		
1,2-Dichloropropane	21.4	0.50	ug/L	20	107	70-130	107	70-130		
cis-1,3-Dichloropropylene	19.5	0.20	ug/L	20	97.4	70-130	97.4	70-130		
trans-1,3-Dichloropropylene	18.7	0.20	ug/L	20	93.6	70-130	93.6	70-130		
Ethylbenzene	20.2	0.20	ug/L	20	101	70-130	101	70-130		
Methylene Chloride	19.1	5.0	ug/L	20	95.5	70-130	95.5	70-130		
1,1,2,2-Tetrachloroethane	19.0	0.30	ug/L	20	95.2	70-130	95.2	70-130		
Tetrachloroethylene (PCE)	20.9	0.50	ug/L	20	105	70-130	105	70-130		
Toluene	20.0	0.30	ug/L	20	99.8	70-130	99.8	70-130		
1,1,2-Trichloroethane	20.2	0.30	ug/L	20	101	70-130	101	70-130		
1,1,1-Trichloroethane	19.1	0.30	ug/L	20	95.4	70-130	95.4	70-130		
Trichloroethylene (TCE)	20.6	0.20	ug/L	20	103	70-130	103	70-130		
Vinyl chloride	17.6	0.50	ug/L	20	87.9	70-130	87.9	70-130		

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	RPD	RPD Limit	Notes
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VOCs by GC/MS EPA 624 - Quality Control

Batch B9C2621 - EPA 5030B

Matrix Spike (B9C2621-MS1) Continued Source: 9C20009-15 Prepared & Analyzed: 03/26/19

Matrix Spike Dup (B9C2621-MSD1)	Source: 9C20009-15 Prepared & Analyzed: 03/26/19								
Benzene	21.4	0.20	ug/L	20	107	70-130	6.12	30	
Bromodichloromethane	20.5	0.20	ug/L	20	102	70-130	3.48	30	
Bromoform	20.7	0.50	ug/L	20	104	70-130	7.98	30	
Bromomethane	16.0	0.50	ug/L	20	80.2	70-130	15.6	30	
Carbon Tetrachloride	19.9	0.30	ug/L	20	99.6	70-130	2.80	30	
Chlorobenzene	21.1	0.30	ug/L	20	106	70-130	3.22	30	
Chloroethane	23.8	0.50	ug/L	20	119	70-130	0.546	30	
Chloroform	19.8	0.30	ug/L	20	98.8	70-130	2.30	30	
Chloromethane	19.8	0.40	ug/L	20	99.0	65-130	13.0	30	
Dibromochloromethane	20.3	0.30	ug/L	20	102	70-130	5.67	30	
1,2-Dichlorobenzene	21.6	0.30	ug/L	20	108	70-130	7.65	30	
1,4-Dichlorobenzene	21.0	0.30	ug/L	20	105	70-130	5.42	30	
1,3-Dichlorobenzene	20.5	0.10	ug/L	20	102	70-130	3.73	30	
1,1-Dichloroethane	18.1	0.20	ug/L	20	90.7	70-130	0.664	30	
1,2-Dichloroethane (EDC)	19.1	0.30	ug/L	20	95.4	70-130	4.12	30	
trans-1,2-Dichloroethylene	20.5	0.40	ug/L	20	102	70-130	3.07	30	
1,1-Dichloroethylene	19.5	0.30	ug/L	20	97.6	70-130	3.39	30	
cis-1,3-Dichloropropylene	20.3	0.20	ug/L	20	101	70-130	4.12	30	
trans-1,3-Dichloropropylene	19.7	0.20	ug/L	20	98.6	70-130	5.15	30	
Ethylbenzene	21.3	0.20	ug/L	20	107	70-130	5.59	30	
Methylene Chloride	19.7	5.0	ug/L	20	98.3	70-130	2.89	30	
1,1,2,2-Tetrachloroethane	20.8	0.30	ug/L	20	104	70-130	8.69	30	
Tetrachloroethylene (PCE)	21.4	0.50	ug/L	20	107	70-130	2.41	30	
Toluene	20.8	0.30	ug/L	20	104	70-130	4.07	30	
1,1,2-Trichloroethane	20.9	0.30	ug/L	20	104	70-130	3.21	30	
1,1,1-Trichloroethane	19.7	0.30	ug/L	20	98.3	70-130	2.99	30	
Trichloroethylene (TCE)	21.4	0.20	ug/L	20	107	70-130	3.81	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%Limits	RPD	RPD Limit	Notes
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VOCs by GC/MS EPA 624 - Quality Control

Batch B9C2621 - EPA 5030B

Matrix Spike Dup (B9C2621-MSD1)

Source: 9C20009-15 Prepared & Analyzed: 03/26/19

Continued

Vinyl chloride	17.2	0.50	ug/L	20	85.8	70-130	2.48	30	
Surrogate: 4-Bromofluorobenzene	54.3		ug/L	50	109	70-140			
Surrogate: Dibromofluoromethane	49.9		ug/L	50	99.8	70-140			
Surrogate: Toluene-d8	53.0		ug/L	50	106	70-140			

A handwritten signature in black ink, appearing to read "Viorel Vasile".

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - WDR Samples

AA Project No: MB874348
Date Received: 03/20/19
Date Reported: 04/05/19

Special Notes

- [1] = *** : Exceeds lower control limit.
- [2] = AA-C1 : Exceeds RPD limit.
- J : Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

Viorel Vasile
Operations Manager



AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311

Tel: 818-998-5547 Fax: 818-998-7258

A.A. COC No. 17-748

Page 1 of 1

Client: Haley & Aldrich ; JHA Environmental, Inc.		Project Name / No.: Cooper Drum IDWP		Sampler's Name: Alex Felix								
Project Manager: Chris Tsatsios / Matt Hillman		Site Address: 9313 Rayo Ave		Sampler's Signature: <u>Alex Felix</u>								
Phone: 714-371-1820 / 714-392-5970		City: Southgate		P.O.No:								
Fax: 949-453-1047		State & Zip: CA		Quote.:								
TAT Turnaround Codes **												
1 = Same Day Rush		4 = 72 Hour Rush										
2 = 24 Hour Rush		5 = 5 Day Rush										
3 = 48 Hour Rush		X = 10 Working Days (Standard TAT)		*ANALYSIS REQUESTED (Test Name)								
						Special Instructions						
Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	Please enter the TAT Turnaround Codes ** below						
CD-IDWP-032019-0001	<u>MB 374 348 -01</u> <i>JW 962008</i>	3/20/2019	1200	Water	9	X	X	X	X	X	X	*: field analyzed
VOC's EPA 624 SVOC's EPA 625 pH (within 1 Hour) COD by EPA 410.4 TSS by SM2540D Dissolved Suffides												
SAMPLE INTEGRITY INTACT <input checked="" type="checkbox"/> N TEMP <u>47</u>												
<u>T. O'HARADA</u> <u>J. LOBOSCO</u>												
For Laboratory Use REVIEWED Date <u>3/20/19</u> Time <u>1600</u> TAT <u>N</u> Days Sign: <u></u> A.A. Project No.: <u>MB 374 348 / 962008</u>			Relinquished by		Date		Time		Received by			
			<u>Alex Felix</u>		03-20-19		1200		<u></u>			
			X		Date		Time		Received by			
					3/20/19		1500		<u></u>			

Note: By Relinquishing samples to American Analytics, Client agrees to pay for the services requested on this chain of Custody form and any additional client-requested analyses performed on this project.
 Payment for services is due within 30 Days from the date invoice. Sample(s) will be disposed of after 45 days following the submittal of the sample(s) To American Analytics.